Safety Maintenance

EST. 1901 • AMERICA'S PIONEER MAGAZINE IN ITS FIELD • APRIL, 1959 • 50¢
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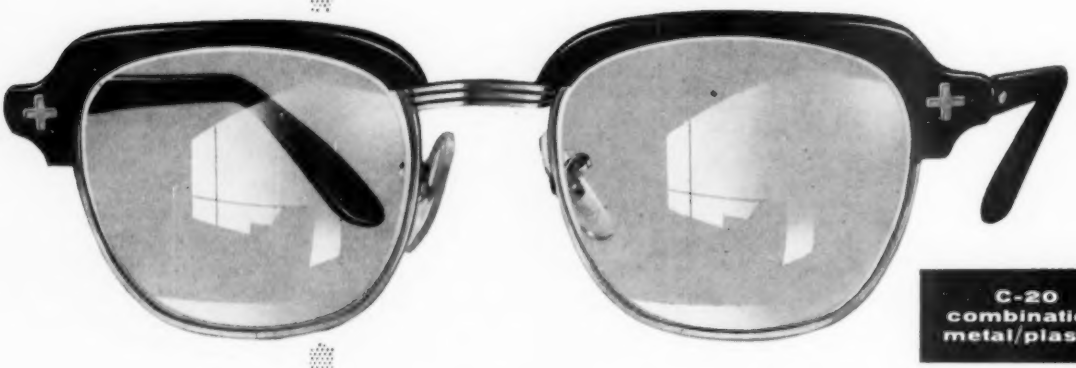

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BAUSCH & LOMB

PROTECTION **PLUS**
Safety Eyewear

protection+economy+worker acceptance

(For details, use Key # D-1 on card on page 1)

BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE. To obtain copies write in the key numbers on the free-postage card below.

PLANT MAINTENANCE

Fan Noise Calculator 358
Propellair Div., Robbins & Myers, Inc. Device uses the new "sones" loudness rating system to speed calculation of noise increase resulting from the addition of fans to a room. It backs up the change from decibel to sone ratings made in most fan catalogs. Calculator translates a series of accoustical formulas into linear units.

Scaffold Safety 359
Aluminum Safety Products, Inc. Brochure provides valuable safety procedures and maintenance instructions in the construction and care of scaffolding equipment. It offers a pictorial, step by step, review of the proper, safe way to set up scaffolds.

Building Maintenance Materials . 360
Rock-Tred Corp. Prospectus abstracts a complete line of building maintenance products. Flooring and roofing materials, sealing compounds, concrete hardeners, etc. are described, offering a full range of maintenance chemical compounds.

Powered Cleaning Equipment ... 361
Finnell System, Inc. Handsomely illustrated catalog depicts and illustrates a complete line of plant and floor maintenance equipment. Such equipment as mop trucks, floor scrubbers and vacuum units, cleaners, waxes and combination floor machines are highlighted. Full specifications are reported for each item.

Ice and Snow Control 362
Speco, Inc. Bulletin describes a new compound that provides effective and economical ice and snow control. Features discussed include the exothermic melting action of its flat crystalline chips, which contain no salt and are said to be harmless to vegetation.

Safety Ladders 363
The Patent Scaffolding Co., Inc. Bulletin describes and illustrates a new line of "Trouble Saver" safety ladders. The ladders feature all-welded construction, curved front rails, flared design, extra braces and expanded metal treads. Serrated anti-slip treads and ribbed rubber treads are also available. Specifications are graphically depicted.

Storage Battery Chargers 364
The Electric Storage Battery Co. Bulletin in introducing a complete line of silicon-rectifier chargers for use with stand-by batteries features a chart for determining the correct size and model for specific applications. Tabulating information on 27 models, the chart enables users to select equipment according to number of cells to be charged, output amperage and input voltage, etc. Complete specifications are also given.

Resilient Floor Maintenance 365
Hillyard Chemical Co. A six-page bulletin, designed for easy reference filing, offers pointers on the proper treatment and maintenance for asphalt, linoleum, rubber, vinyl and other resilient floors. Maintenance steps are illustrated and equipment is spotlighted.

PERSONAL PROTECTION

Optical Catalog Index 366
Bausch & Lomb Optical Co. Illustrated index to the company's separate catalogs offers a complete guide to optical products. Division into consumer, ophthalmic and scientific and technical products permits allied products to be grouped together for quick, easy reference. Book also includes a product index for spot reference. A factual account of the contents of each of the company's catalogs is also included.

Foot Protection 367
Safety Box Toe Co. Booklet, a valuable source of information for the safety engineer and lecturer, describes and illustrates the background and development of the modern steel safety toe. Tests given to determine the effectiveness of these important guards are also reported, e.g. the impact and compression tests.

Welder's Gloves 368
Singer Glove Mfg. Co. Data sheet colorfully illustrates a line of reversible welder's gloves. A single glove is designed to fit either hand. Gloves feature welted, non-exposed seams for added safety.

Plastic Goggles, Etc. 369
Pulmosan Safety Equipment Corp. Brochure spotlights a line of chippers and welders goggles, spectacles and eye shields, all made from lightweight plastic. Equipment is designed to be worn over regular prescription glasses. Tinted lenses and side shields are also available.

Protective Clothing Catalog 370
Sawyer-Tower, Inc. Extended catalog reports on protective fabrics and clothing. Clothing features nylon buttons and suspender clasps which are claimed to be non-conductive and corrosion and rust resistant. The care and cleaning of safety clothing is also summarized.

Industrial Work Gloves 371
Riegel Textile Corp. Catalog presents a line of industrial work gloves to offer protection against most of the major industrial hazards. A convenient chart diagrams the various types of glove patterns and cuff styles for easy reference. A program which enables safety personnel to order gloves imprinted with one of various safety messages is also highlighted.

(Continued on the next page)

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APRIL, 1959 **Please send me the following free data**

Free Bulletins (Cont'd)

FIRE PROTECTION

Interior Fire Protection 372
The Fyr-Fyter Co. 28-page brochure covers nine major types of interior fire extinguishing systems, portable extinguishers, cabinets and other "inside" fire control equipment. Details on hose and extinguisher cabinets, a review of the latest extinguisher models, data on hose nozzles, valves and connections are provided. Written portions are devoted entirely to specifications and operation descriptions.

Fire Retardant Coatings 373
Royston Laboratories, Inc. Folder describes the use of fire retardant coatings on various types of thermal insulation materials. Coatings may also be used on metal, wood and masonry structures. An application chart is also provided.

Dry Chemical Extinguisher 374
Ansul Chemical Co. Brochure introduces a new, dry chemical, 2½ lb. extinguisher, approved by both the Underwriters' Laboratories and the U. S. Coast Guard for marine use. The unit, appropriately named the "Monitor," features a new spherically shaped recharge shell for immediate, on-the-spot recharging.

FIRST AID & HYGIENE

Stretchers 375
Bomgardner Mfg. Co. Catalog illustrates a complete line of stretchers to help plants meet every first aid and medical emergency. Units facilitate the painless transfer of injured patients. Multi-level stretchers are designed to raise and lower patients without the use of complicated springs or levers. Units lock automatically for added safety.

Ear Valves 376
Sigma Engineering Co. Data sheet describes ear valves which regulate and control the passage of sound. The unit acts to obstruct and dissipate the harmful energy components of loud, large volume noise. Permits the perception of ordinary conversation and audible warnings, etc.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
116	Ice Grippers
117	Safety Shoes
118	Safety Boots
	FIRST AID AND HYGIENE
122	Sanitary Drinking Facilities
123	Wash-up Facilities
124	Salt Tablets
125	Resuscitators
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
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131	Eye Wash Fountains
134	Hearing Testers
135	Hearing Protectors
136	Noise Analysis Equipment
	FIRE PROTECTION
142	Fire Alarms
143	Safer Solvents
144	Degreasing Machines
145	Drum Safety Valve
146	Welding Curtains
148	Watchmen's Control Systems
149	Extinguishing Ash Trays
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150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
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	MAINTENANCE
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162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Materials
165	Paints
168	Bird Control Devices
169	Toilet Sanitizers
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
177	Carboy Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
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195	Changeable Letter Signs

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U. S. and Canadian $4 (two years $6)
Foreign $5 (two years $8)
Single issues 50¢. Also quantity rates

Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 117, Number 4 **April, 1959**

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Cover picture by courtesy of The Bradley Washfountain Co.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

Published monthly by Alfred M. Best Company, Inc. Publication Office, Columbia Turnpike, Box 232, Rensselaer, N. Y. Editorial and General Offices, Best Building, 75 Fulton Street, New York 38, N. Y. Second-Class Postage paid at Rensselaer, N. Y. Subscription rates: $4.00 Per Year in the United States; $4.00 in Canada; Foreign $5.00. Single Copies, 50 cents.

Postmaster: please send change-of-address notices to: Safety Maintenance, Best Building, 75 Fulton Street, New York 38, N. Y.

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● PRIVILEGE OR RIGHT

One need not live only in the country's larger cities to see the hand of politics buried in the mass of automobile statistics representing tragedy and waste on our streets and highways. Whether or not our motor vehicle casualties showed an increase last year or this, the nerve-shattering vehicle accident record in the aggregate is a national disgrace.

Were our losses so great in industry or in commercial aviation, there would go up from an outraged citizenry a cry loud enough to rock the halls of Congress off its foundations, and the television screens would be filled for hours with telecast investigations.

This desperate slaughter is peculiar to no single section of the nation. Nor is any single segment or age group of drivers responsible for this murder on the highways.

It is very easy for pigmy-minded politicians to capture newspaper headlines by going after the scalp of insurance companies, insurance commissioners or car manufacturers in their zeal to pin the blame for wiping out tens of thousands of our population every year. How often do those headline hunters direct even a small part of their attack on the state motor vehicle bureaus where so much of the blame can be laid?

Car manufacturers would be the first to concede that safety's Utopia has not been reached in car design. Every year cars are designed with more built-in safety features but how can we protect irresponsible, often neurotic drivers against the consequences of their own acts?

Is compulsory insurance the answer to this slaughter? Since when can an insurance policy prevent the death of teenagers who wrap their car around a tree? Will a policy restore life to a crumpled, sheet-covered pedestrian?

It's high time that Congress itself investigate the various state license bureaus. Then, of course, some publicity mad politician will scream to high heaven about the violation of states' rights. In the meantime those bureaus go along honoring the driver's license of the halt, the maimed, the myopic and the psychologically unfit driver who sits behind the wheel armed with the strength of hundreds of horses as he wields the power of life or death over others.

Everyone involved in a vehicle accident should be required to take a new examination before he can drive again. Everyone over a pre-determined age should be required to submit to an annual physical examination. Airline pilots must be examined periodically—why not drivers of surface vehicles? How often do we see patently aged drivers behind the wheel of a motor juggernaut? In New York recently, one editor rode in a taxi driven by a cabbie who certainly was perilously close to his three-score-and-ten. The passenger wondered, as he kept his fingers crossed, when the driver previously had submitted to an eye and general physical examination.

Whether or not we are willing to admit it, everyone applying for a license cannot and should not drive. The reasons may be physical, mental or emotional but those reasons have a way of showing up in accident statistics buried under another name.

If we put teeth into our laws and make a driver's permit a privilege instead of a right, we would be taking the first giant step toward a reduction of suicide and murder on our streets and roads.

But what group of politicians would have the guts to start cleaning out abuses in their political system? Let them try and they would soon learn the true meaning of influence. But until that happy day when a license means a privilege of driving safely and not a license for mayhem, we will continue to fill our cemeteries and hospitals with motor vehicle casualties.

AO CLEANING STATIONS HELP YOUR EYE PROTECTION INVESTMENT PAY OFF!

Strategically located throughout a plant, AO Cleaning Cabinets make it easy for workers to keep safety glasses (and personal glasses) clean. The clean tissue dispensed by the cabinets does a far better cleaning job than a handkerchief or a rag which may be gritty or oily. Yes, and danger of scratching valuable lenses is prevented.

750 LENS CLEANING CABINET

Because it is wooden and will not corrode, this cabinet is particularly popular in the *chemical industry*. Small, compact, it provides for all necessary cleansing and anti-fog materials. 12″ long, 9″ high, 6″ deep, it accommodates either our 750F Lens Cleaning Fluid or our 350AF SUPER-CLEAR-Combination cleaning and anti-fog fluid.

When ordering complete, unit consists of: 750B 6-oz. bottle and sprayer (750S); 750T Cleansing Tissue; 2 boxes of 120 sheets each. (2 openings in cabinet make it easy to detach single sheets. 2 openings at top for neat disposal); One 1-oz. jar of 111 anti-fog paste; 350AF *Superior* SUPER-CLEAR or regular 750F Cleaning Fluid. Specify which fluid desired. Order separately from unit.

Items above clean *glass* or *plastic* equally well.

851 MAGIC HEAVY-DUTY CLEANING STATION

Features disposable Aerosol dispensing can. Can contains approximately 1400 applications. The steel dispenser in miser fashion releases sheets one by one. Can is locked in place to prevent pilferage. Complete with one pack of 851T heavy duty tissues and 1 can of 851F Cleaning and Anti-Fog Fluid.

851MB ATTACHMENT

For those who prefer the 350AF SUPER-CLEAR Anti-Fog Fluid with the 851 Cabinet. Metal attachment locks bottle in place, prevents pilferage.

850 DISPENSER

Dispenses paper twice the size of conventional cleaning tissues. Tissues remove dust and smears from safety glasses and deposit an invisible coating of silicone that makes each wiping last longer, and the next cleaning easier. Size: 3¼″ x 7¼″ x 3⅛″. Adhesive strips on back of dispenser for quick, secure mounting.

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- **What are the safety and maintenance factors of specific paints . . . the importance of the Color Code and where to use red, green, white, orange and even purple . . . who specializes in such paints?**
- **What are the most economical types of materials handling equipment for you?**
- **What is the importance of a uniform code for safety signs and signals . . . where can you find materials which will fit a planned program?**
- **What are the essentials for hand soaps and cleansers to protect the skin . . . the types of protective creams to prevent skin rash?**
- **What are the various types of electrical equipment approved by the Underwriters' Laboratories for specific conditions of hazardous gases, vapors and dusts . . . who makes them?**
- **What are the vapor hazards of flammable liquids . . . what fire prevention containers and equipment will do exactly the right job?**
- **What is the range of protective clothing, such as 70 different types of protective gloves . . . the specific merits and uses of each one—which is the very best for you?**
- **What can you save in time, money and production by selecting the right ladder for an operation?**
- **When will awards and placques speed up production?**

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[illegible] THOROUGH!!

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Features more eye coverage with wide field of vision in the new "Squared Shape," accommodating the latest S-7 interchangeable lenses. Lens channels are molded, insuring uniform size with even lens retention. Sideshields perforated for ample ventilation.

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Twenty-ninth Annual Greater New York Safety Convention and Exposition (Hotel Statler). Greater New York Safety Council, Inc., 60 East 42nd St., New York 17, N. Y.

Syracuse, N. Y. *April 20–22*

Sixth Biennial Central New York Safety Conference and Exposition (Hotel Syracuse). Newell C. Townsend, Administrative Secretary, Central New York Chapter A.S.S.E., 351 S. Warren St., Syracuse 2, N. Y.

Indianapolis, Ind. *April 22–23*

Twelfth Central Indiana Safety Conference & Exhibit (Claypool Hotel). Indianapolis Safety Council, 320 N. Meridian St., Indianapolis, Ind.

East Lansing, Mich. *April 27–29*

Sixth National Conference on Campus Safety (Michigan State University). Norman V. Steere, Chairman, Department of Public Safety, Michigan State University, E. Lansing, Mich.

Columbus, Ohio *April 28–30*

Twenty-Ninth Annual All-Ohio Safety Congress and Exhibit (Deshler-Hilton Hotel). Arthur W. Moon, Congress Manager, Room 611, Ohio Departments Bldg., Columbus 15, Ohio.

Allentown, Bethlehem, Easton, Pa. *May 4–6*

Thirty-Second Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, Secretary-Treasurer, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 5–7*

Nineteenth Western New York Safety Conference (Hotel Niagara). Clifford H. Seymour, Executive Secretary, Western New York Safety Conference, P. O. Box 315, Niagara Falls, N. Y.

Rochester, N. Y. *May 12–14*

1959 Genesee Valley Safety Conference & Exposition (Manger Hotel). Earl R. Wallace, Vice President, Genesee Valley Safety Conference, 55 St. Paul St., Rochester 4, N. Y.

Roanoke, Va. *May 18–20*

Virginia Safety Association Conference (Roanoke Hotel). James T. Wadkins, Mgr., Virginia Safety Association, 2051 Monument Ave., Richmond 20, Va.

Duluth, Minn. *May 21–22*

Thirty-fifth Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). Allen D. Look, Secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

Gatlinburg, Tenn. *June 18–20*

Fourth Annual Meeting of the Health Physics Society. G. T. Saunders, Health Physics Society, c/o Kewaunee Mfg. Co., Adrian, Mich.

Chicago, Ill. *September 21–25*

Fourteenth Annual Instrument-Automation Conference & Exhibit, (International Amphitheatre). Fred J. Tabery, 3443 S. Hill St., Los Angeles 7, Calif.

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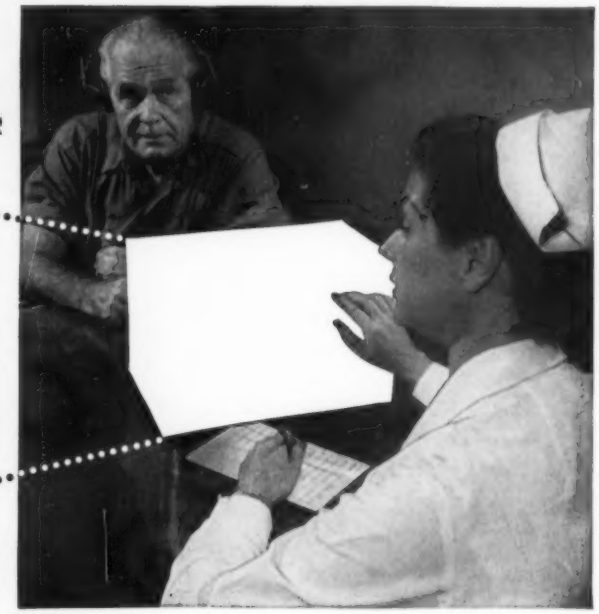

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HOW ONE STATE'S SAFETY SERVICE AXES ACCIDENTS

COSTS OF INDUSTRIAL INJURIES IN NEW YORK STATE IN 1957 (ESTIMATED)

COSTS TO EMPLOYERS		$504,000,000
COMPENSATION PAID	$114,000,000	
MEDICAL EXPENSES PAID	47,000,000	
ADM. AND PREMIUM EXPENSE	90,000,000	
TOTAL INSURED COSTS TO EMPLOYERS	251,000,000	
NONINSURED COSTS TO EMPLOYERS	253,000,000	
NONCOMPENSATED WAGE LOSS TO EMPLOYEES		226,000,000
TOTAL		$730,000,000

by **M. P. CATHERWOOD**
Industrial Commissioner
State of New York
Department of Labor

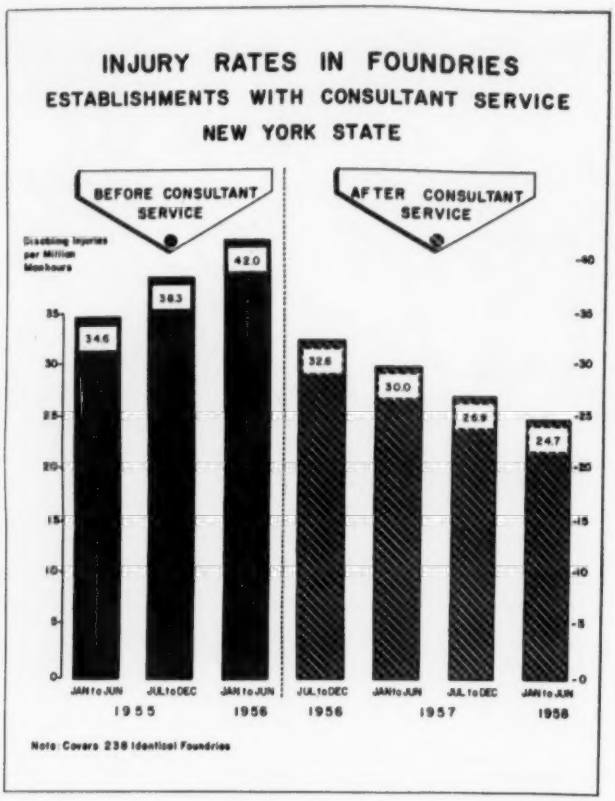
In 1958 approximately 640,500 work injuries were reported to the Workmen's Compensation Board of New York State, or 107 injuries per thousand nonfarm workers. This was 11 percent fewer injuries than in 1957, a year when the total cost of injuries in the State was estimated at $730 million.

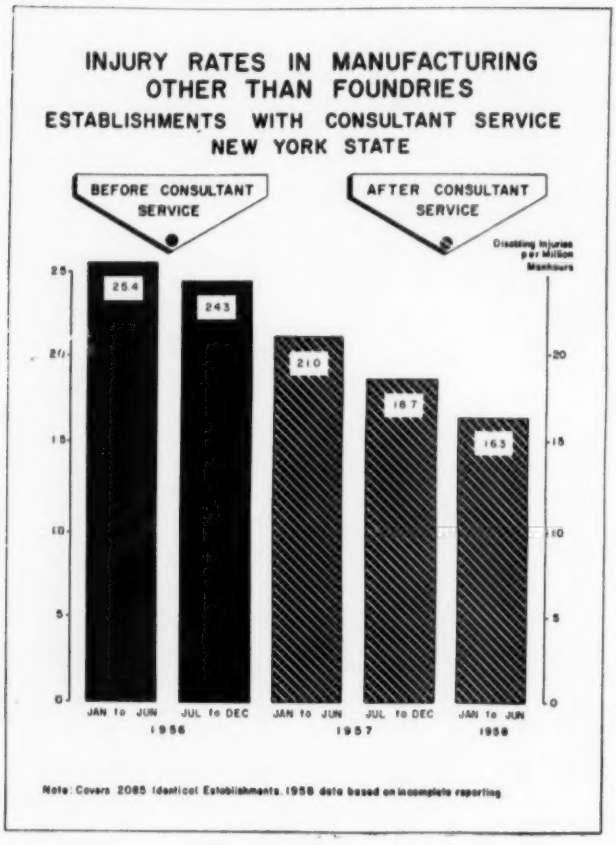
About $226 million of the $730 million was uncompensated wage loss of injured employees. The remaining $504 million was what industry paid out for indemnification of wage losses, for medical services, for insurance administration, for damaged equipment and materials, etc. The estimate includes injuries not covered by compensation, but about half of the employers' cost in 1957 was paid in the form of compensation insurance premiums.

For several decades the State's industrial accident rate has been moving irregularly downward. For example, in the 20-year period ending in 1950 the frequency rate of factory injuries went down 19 percent. Part of the credit for this improvement must go to the inspections made by the State's Labor Department. Statistical confirmation for this point is found in the fact that the decline in the rate of accidents connected with machines—which are comprehensively covered by the State's safety laws and regulations—was not 19 but 26 percent. Not every workplace was inspected every year during that period, but for several years prior to 1956, when it began its "safety consultant program," the Department inspected nearly all the 100,000 factories and 135,000 mercantile establishments in the State.

Statistics that are available for the period since 1950 show an improvement more rapid than before 1950. In the year 1951, the middle of the Korea production boom, 149 work injuries were reported to the New York Compensation Board per thousand nonfarm employees, but by 1957 this rate was down to 116. In 1958 it was only 107, in part because the recession shortened the average workweek in 1958 and few green hands were being hired. For the manufacturing industries of the State, frequency rates per million manhours worked are available for 1952–1957. In 1957 the factory frequency rate (State average) was 12.7 disabling injuries per million manhours—1.6 percent below 1956 and 19 percent below 1952.

Since mid-1956 the improvements in the safety picture are in part traceable to the State's "safety consultant program." Back in 1952 and 1953 the Labor Department began to look into the question of whether its routine inspection system was the most effective possible way to use a $2 million safety budget. Its study, completed early in 1954, indicated that establishments obeying the law were likely to have a favorable accident experience, and that there had been good progress over the years in reducing the number of injuries that arose from circumstances covered by the safety law and regulations. However, this reduction laid bare the other factors that cause accidents. Not more than 10 or 15 percent of all work





injuries in manufacturing, it was estimated, were still due solely to mechanical or other environmental hazards. And relatively few of these could be blamed on actual violations of the Labor Law.

The study also covered the preventive work being done by industry itself. This showed how sharply it was possible to cut injury rates in high-hazard establishments and high-hazard industries, and also underscored the importance of employee training and education in an effective safety program.

New Program

On the basis of these findings the Department decided to divert some of its energies from routine inspection, in which its agents spent only just enough time in a place to discover whether there were violations of law, that is, to check fire exits, machine guards, ventilation, harmful substances, etc. For high-hazard industries and for high-hazard establishments the Department would turn its inspectors into safety consultants, under a program that would permit them to do everything they were capable of toward the prevention of accidents. With the cooperation of management, the consultant would go through the establishment and locate and identify all sources of hazard, not merely those that came within the safety codes. He might recommend safety training for employees, propose safer work procedures, or whatever else was called for. He would make as many visits to the plant as were necessary, even though this meant that there were fewer inspectors left for establishments not under the new program —which would be visited only once every two or three years.

To prepare them for the new approach, Department safety inspectors took a seven-week training course, either at New York University or at Cornell University, in the procedures and techniques they were to apply. In addition, supplemental training was given directly by Department experts on the special safety problems of the foundry industry, which was chosen as the first industry to come under the program.

In June 1956 the consultants began their visits to iron and steel

Examples of New York's Accident Prevention Program

Employee finds out who his safety committee representative is going to be throughout next three months.

Containers of finished products are shown here neatly stacked, a practice that cuts shipping room accidents.

The myriad of steel cables which hold the secondary platforms in place are only as safe as the winches in which they are geared. These need regular inspection.

Accident frequency dropped for three reasons: well guarded belt and shaft, record on board, neat material stacks.

Picture above affords exceptionally good illustration of bad lifting habits of kind which are reflected in injury rate. Man's posture almost assures trouble.

TABLE 1: Accident Causes in 3,864 Disabling Injuries Investigated Under the New York Labor Department Consultant Program *

Accident cause	Number of accidents	Percent of total	Rank
Total accidents * *	3,864	100.0	xx
Improper lifting	491	12.7	1
Unsafe use of equipment; not using equipment provided	486	12.6	2
Not wearing or lack of safe attire or personal protective equipment	414	10.7	3
Unsafe process or procedure	414	10.7	3
Unsafe position or posture (other than improper lifting and inattention to footing)	393	10.2	5
Improperly placed, stored or piled	377	9.8	6
Defective tools, equipment, materials	337	8.7	7
Gripping objects insecurely; taking wrong hold	285	7.4	8
Inattention to footing	242	6.3	9
Lack of safety devices; improperly guarded machinery	222	5.7	10
Working on moving or dangerous equipment	173	4.5	11
Inadequately secured, locked or blocked	170	4.4	12
Lifting or carrying too heavy loads	170	4.4	12
Inadequate or congested work space, aisles, inadequate clearance, etc.	115	3.0	14
Slippery floors, tools	112	2.9	15
Operating or working at unsafe speed	109	2.8	16
All other	712	18.4	xx

* Includes 1,259 disabling work injuries in foundries and 2,605 injuries in other factories that occurred subsequent to the first visit by a state consultant in the establishments covered under the New York State Safety Consultant Program, June 1956 to October 1957.

** In cases where the accident had more than one cause, for example, a hazardous condition such as "slippery floors" and an unsafe act such as "inattention to footing," both were counted, with the result that the cause items add up to more than the total number of cases. But only one entry was made where the unsafe act and the hazardous condition overlap, as do "failure to wear personal protective equipment provided" and "not enforcing the rules regarding wearing of protective equipment."

foundries, malleable iron foundries, and nonferrous foundries. Shortly afterwards, consultant service was extended outside of the foundry industry, being proffered to factories with relatively high injury-frequency rates.

At the beginning of 1959 the New York Labor Department was servicing 341 foundries, plus 3,140 other plants in a wide range of industries, including food, textiles, furniture, paper, printing, chemicals, leather, the stone-clay-glass group, the metals-and-machinery group, and transportation equipment. In June 1957 the consultative safety program was extended to the construction industry, and 153 projects involving 878 buildings or other structures were serviced in the next 18 months.

Establishments under the new program maintain a running record of work injury experience, which is reviewed by the consultants. Employers not yet under the program are also encouraged to keep such a record and discuss it with the State safety inspector when he arrives.

Results Under the Consultant Program

The record of accidents kept by firms under the consultant program can be compared with the same firms' earlier experience. This comparison shows a noticeable drop in the frequency of disabling work injuries.

Foundries. There are 238 foundries—the vast majority of that industry in New York State—that have been in the program since it began in the last half of 1956. Their records show a rise in the injury-frequency rate per million manhours to early 1956 and an abrupt decline after that:

1955:	first half	34.6
	second half	38.3
1956:	first half	42.0
	second half	32.6
1957:	first half	30.0
	second half	26.9
1958:	first half	24.7

Judging from national foundry-accident data, about half of the decline would have occurred anyway. The other half is probably attributable to the safety drive associated with the new program of the New York Labor Department.

Other factories. Similar results have been registered at the other factories in the program, too. The bulk of these came into the program in 1957. All of them were selected because they had frequent work-injuries. In the 2,085 plants for which data are available for both 1956 and 1957 the average frequency rate dropped in one year from 24.8 (all of 1956) to 19.9 (all of 1957)—a decline of 20 percent. During the same period the frequency rate of manufacturing as a whole in New York State fell about 2 percent. Preliminary 1958 data, covering 1,610 establishments, indicate that the two-year drop in the frequency rate per million manhours between the first half of 1956 and the first half of 1958 amounted to 36 percent for factories under the program:

1956:	first half	25.4
	second half	24.3
1957:	first half	21.0
	second half	18.7
1958:	first half (preliminary)	16.3

Accident Causes

As part of their job, the State's safety consultants investigate each accident that has occurred since their last visit to the plant. They found both a hazardous condition and an unsafe act in connection with 48 percent of the injuries re-

(Continued on page 59)

SAFETY IN STEEL-TOED SHOES

The human foot, as every toe-stubber knows, is delicate as well as durable. Injuries to it are invariably painful. A fracture of any of its 26 bones is likely to be a long time mending. A serious accident may be permanently crippling. Such mishaps can mean loss of time and money and even jobs to workers and, often, loss of production to their employers. Hence the safety shoe has become almost standard equipment in heavy industries such as steel.

Among First Users

The iron and steel industry has been among the first and most devoted users of many kinds of protective apparel. Its adoption of safety shoes is a good case in point, one that goes back to about 1900. The earliest shoes the industry tried on for size were made of fireproof leather and worn by foundrymen. Ten years later iron and steel workers looked with interest upon safety shoes with fiber-top caps that had been developed for more general industrial use. But the fiber cap tended to deteriorate and soften. Safety shoemakers needed and sought something better. And as it has in so many other cases, steel—the metal—provided them with the answer.

Rather crude steel-toed shoes made their appearance in the early 1920's. Since then their strength and style have been notably improved. Today's box toes are made of high carbon, cold rolled steel. They are able to withstand the impact of a 50-pound weight dropped 18 inches, and they have borne a static load greater than two tons without injury to the wearer.

The design of the shoes in which the steel toes are incorporated varies, but the steel safeguards remain constant. In addition, sturdy soles and tough uppers withstand dirt, acid and other working conditions which would quickly wear out ordinary dress shoes.

Safety for Instep

Even with steel toe caps, there is danger of injury to other parts of the foot. Recent developments offer special protection through devices either built on the shoe or fastened to it to protect the instep area. For the worker whose job puts him in the same vulnerable class as a baseball catcher, there are also leg guards.

Some steel companies make safety shoes available to employees at cost through plant stores or "shoe store" trucks which visit the mills.

About five million pairs of safety shoes were bought by all industry last year—a convincing indication of what the safety-conscious Americans wear while keeping their feet on the ground.

By courtesy of "Steelways"; published by American Iron and Steel Institute.

eye cue for

The Timken Roller Bearing Company Rates a high Safety I. Q. for its eye protection program.

The simple process of lighting a cigarette or identifying cloth or shoelaces by touch becomes a difficult task for a person blindfolded in a darkened room. That much was brought home to a group of supervisors of The Timken Roller Bearing Company participating in a "Let's Pretend" program that demonstrated, with impact, the loss of sight. It pointed up too the importance the Timken Company places on eye protection in its overall safety program.

The eye protection program centers around a new more liberal system of providing fitted prescription and non-prescription safety glasses to all employees. This is a preventive program designed to encourage employees to protect their eyesight.

The general-duty safety glasses provided by the Timken Company are both attractive and comfortable. The non-flammable acetate frames come in copper and crystal pink colors in 16 different styles. Bifocal, double bifocal and trifocal lenses can be ground to duplicate any prescription. Employees obtain the prescription glasses by simply presenting their prescription to the Medical Department. The lenses are ground by an optical laboratory and the company's dispensing optician fits the glasses to the employee. Plain safety glasses are fitted with the same care. No charge is made to the employee and if, after six months he is still with the company, the prescription glasses are his.

Replacement and repair of pitted, scratched or broken glasses is assumed by the company. An inventory of spare frames and plain lenses is stocked to speed quick repairs. In some cases the repairs are made on the job by the optical specialist. The replacement of prescription glasses takes about a week's time.

On jobs where eye injuries are a distinct possibility, employees must wear safety glasses. The type of eye protection for the specific jobs is determined by the Safety Department. For other tasks, such as visual inspection, safety glasses are not mandatory, but employees are encouraged to wear them. The new program has been a big help.

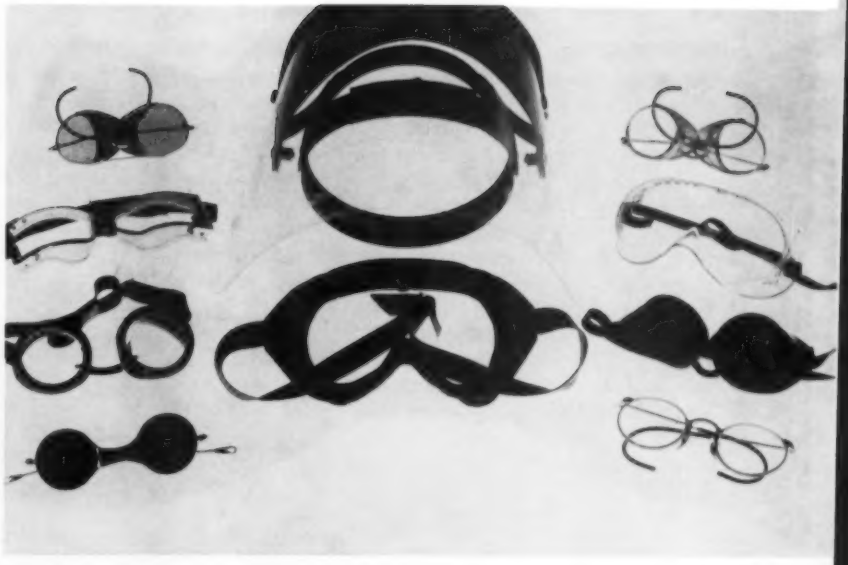
MAKING SURE

All prescription safety glasses are checked on a lensometer, as shown above, to make sure optical laboratory has ground them to fit doctor's prescription.

(Right) A wide assortment of specialized safety goggles, glasses, face shields is available to all employees.

(Far left) A plastic shield, near the turning tool, and safety glasses, protect this worker from flying chips.

(Left) Forehead presses down metal disc of eye wash fountain, held by hand here, water spouts rinse eyes.



safety

EYE PROTECTION SERIES
other articles in May, June

James Reed, Safety Engineer for the Timken Company, observed, "We have glasses on men who would never wear them before and who now are glad to have them." During one day in January of 1959, 43 employees voluntarily asked for plain safety glasses.

Further proof of the success of the new program is indicated by the number of new glasses issued. Since this plan was started in April of 1957, over 2,100 prescription glasses and nearly 900 plain safety glasses have been issued.

Goggles, face shields, protective hoods, hard hats and gas masks round out the equipment stocked by the Safety Department for the protection of the eyes and face.

Goggles are of several varieties. Men performing tasks where complete eye coverage is necessary wear goggles with plain lenses. These are of two styles, the cup type and the vinyl plastic type that rest on the nose and can cover prescription glasses. Men handling chemicals capable of burning the eyes wear close-fitting "acid goggles." Cup goggles with colored lenses are used by acetylene welders. Electric welders wear welding hoods with a deeper colored lens.

Light Machine Operations

Employees doing light machining operations or handling caustics don plastic face shields with head pieces. In places where metal "splashes" might occur, men use wire screen face shields.

Hoods with special heat-treated glass windows are worn by men making emergency repairs, when

THE PROTECTION IS RIGHT

Nurse holds a goggle display tray containing some of the styles available.

Dispensing optician fits new glasses on employee, an electrician. Glasses have either adjustable or stationary pads, may be adjusted or repaired at any time.

possible, on furnaces of the reheating type. No such repairs can be attempted on furnaces where molten metal is present, of course.

The most recent addition to the eye protection safety program has been the installation of eye wash fountains in strategic places throughout the plants. By pressing the forehead against a metal disk, two jets of water spray the eyes. Immediate dilution of chemicals in the eye with water may spell the difference between a permanent eye injury and one that can be cured.

Eye Safety Training

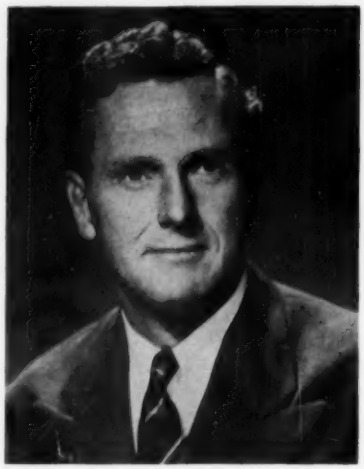
Substantial investment in eye-face protective equipment does not by itself assure protection against injury. The administration of a sound safety program, including the education of supervisors and employees, must be constantly maintained by the Safety Department. At the Timken Company the Safety Department determines what protective equipment will be worn by employees on particular jobs. The enforcement of safety practices is the responsibility of supervision. The problem is mainly one of information and education. To overcome this obstacle this solution was developed.

First, a general safety booklet, "Safety at Work, at Home, at Play," was distributed to all employees. This colorful booklet, made readable by cartoon characters and simple statements, is something new in safety handbooks for an industrial plant. As indicated by its title it places equal emphasis on accidents that can happen in the home and during vacations as well as those possible in the plant. It recognizes the fact that an employee's services are lost to the company regardless of where the accident occurs.

The second step of this program is well underway, but as yet not complete. Separate booklets are being compiled and printed for each department. These contain specific information on protective devices and safety practices.

Following completion of the specific safety booklets a meeting is held between the supervision over each department and the Safety Department to discuss all of its ramifications.

The series of individual safety booklets permits a more flexible program. The guides can be updated when necessary with a minimum of effort and expense.



Blackman Heads A.S.S.E.

A. C. Blackman, who formerly headed California's Division of Industrial Safety, on February 16 took over the duties of his new position as managing director of the American Society of Safety Engineers. He was elected to the post, chief administrative office of the Society, by the national Executive Committee at a January 12 meeting in New York City.

The American Society of Safety Engineers, with headquarters in Chicago, is a professional organization of safety engineers dedicated to upholding the standards of their profession and using their abilities for human service in the nation, the state and the community. With 71 chapters located throughout the United States and in Hawaii and Canada, the Society has a worldwide membership of more than 7,000 safety engineers.

Mr. Blackman brings to his new position a background of more than 27 years in accident prevention work, starting in 1931 when he became a safety engineer for the Liberty Mutual Insurance Company.

Except for service in the Army during World War II, he remained with Liberty Mutual until 1947, when he was appointed to the position of chief, Division of Industrial Safety, State Department of Industrial Relations, by the then Governor Earl Warren of California.

Mr. Blackman, who has been a member of the American Society of Safety Engineers since 1944, has been active in the Society's San Francisco Chapter. He also is a member of the American Industrial Hygiene Association; the Industrial Conference, National Safety Council; the Casualty Council, Underwriters' Laboratories; the Advisory Committee of State Officials to the Atomic Energy Commission; the National Committee on Radiation Protection; the Committee on Public Employes of the President's Conference; the Safety Committee of the International Labor Organization. A graduate of Cornell University with a degree in mechanical engineering, Mr. Blackman is a registered engineer in California.

Boilershop Accidents

This report, Bulletin No. 1237, contains a detailed analysis of injuries and hazards for the boilershop products industry. Included are analyses of: 1. Nature of injuries and parts of body injured; 2. Agencies involved in accidents and types of accidents; and 3. Accident causes. Published by the U. S. Dept. of Labor, "Injuries and Accident Causes In the Boilershop-Products Industry" is for sale at 50 cents per copy from the following regional offices of the Bureau of Labor Statistics:

341 Ninth Avenue,
New York 1, N. Y.
105 West Adams Street,
Chicago 3, Ill.
630 Sansome Street,
San Francisco 11, Calif.
18 Oliver Street, Boston 10, Mass.
1371 Peachtree Street,
N. E., Atlanta 9, Ga.
or from Superintendent of Documents, Government Printing Office, Washington 25, D. C.

For a copy of booklet described on opposite page, use Key # D-6 on card on page 1. →

Pittsburgh Color Dynamics®
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Graflex, Inc. of Rochester, New York, has used Pittsburgh COLOR DYNAMICS for many years to improve productive efficiency and safety of its workers. As a result of its highly satisfactory experience, the new building recently completed to house main offices and manufacturing facilities, has been completely painted according to the principles of this modern color system.

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(For details, use Key # D-7 on card on page 1)

Britain's Mr. Safety Visits the States

Britain's Mr. Safety, 37-year old James Tye, will visit the United States for 18 days during April. Mr. Tye will arrive in New York on April 11 and will visit Chicago and Washington. As Chairman of the British Safety Council (the organization which has hit the headlines 12 times in the last 3 months), he will study the activities of safety organizations in New York and Chicago. While here, he is to be presented with a series of safety films, the first of which will be, "It's Up to You" by the Bakery & Confectionery Workers International Union of America.

During his visit to Washington he hopes to present President Eisenhower with the Council's Safety Award in recognition of his services to the cause of Safety.

He will attend the Greater New York Safety Convention & Exposition at the Hotel Statler in New York, and will visit New York University Centre for Safety Education.

The name "James Tye" and "Safety" have become synonymous in Great Britain through press, radio and television. An indefatigable worker, he is constantly "en garde" in matters of safety. Although he is considered an international figure among safety experts, he is always ready to learn of new approaches to the problem. He believes that his trip to this country will contribute much to this end.

The British Safety Council is just two years old but is now the leading safety organization in Great Britain with the largest membership covering 3 million workers. It plays its vital role by using methods conventional and unconventional. In the autumn of last year the Council released a record called "Safety Sue." The lyrics were sung by personalities in the sporting world, the Duke of Bedford and Mr. Tye himself. Another new angle was the distribution of a "smelly" poster. The press went wild about the cut hand with a caption, "Dress it Before it Matters." The poster was impregnated

(Continued on page 33)

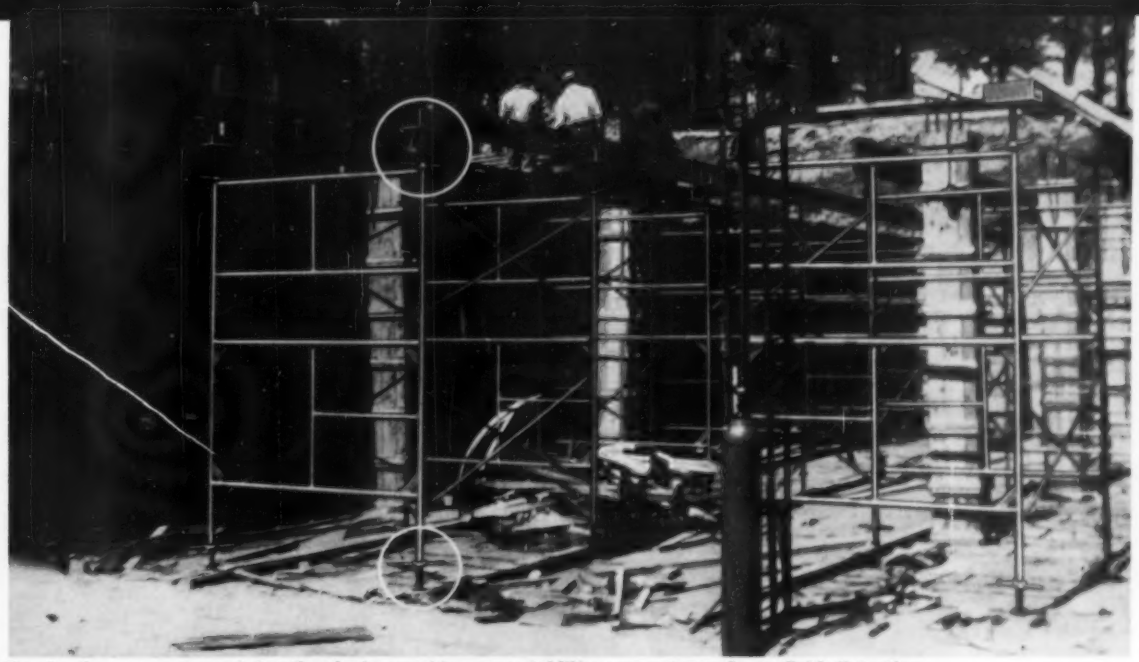


Fig. 1—On uneven ground, leveling jacks provide more stability, prevent unsafe scaffold distortion.

FOLD UP YOUR SCAFFOLD ACCIDENTS

Here are some recommened safety practices in the erection and use of scaffolding equipment.

• Begin the scaffold job with a good base or footing that is leveled or plumbed. On solid ground use base plates or plank or both.

• When ground is uneven and cannot be leveled, use leveling jacks at base in place of blocking. See Figure 1.

• On soft ground use mud sills and set frames to distribute the load.

• Do not use damaged, bent or deteriorated scaffold.

• Tie scaffold into the building or wall every 20 feet or less in height, and at least every 28 feet of scaffold length.

• Follow the safe load capacities of each scaffold part as given.

• Do not overload scaffold or load beyond safe load limits as given, without first checking with the scaffold company sales or engineering departments for advice.

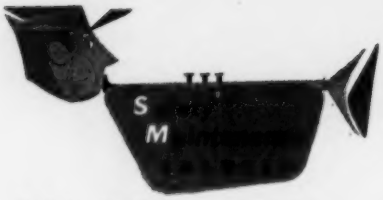
• Expanded metal scaffold planks and catwalks have safety advantages over wood planking (see Figure 2); but if wood planking is all that is available on the job, be sure that it is thoroughly checked and inspected as being 2″ x 8″, 10″, or 12″ No. 1 select lumber free from knots, cracks, or warpage.

• Guard rail posts, guard rails and toe boards should always be

(Continued on next page)

Fig. 2—Catwalks of expanded metal are stronger, less slippery in bad weather, offer fewer stumble hazards than wood.

Fig. 3—It is important to an adequate scaffold safety program that, at working levels, protection should include guard rail posts, guard rails and toe boards.

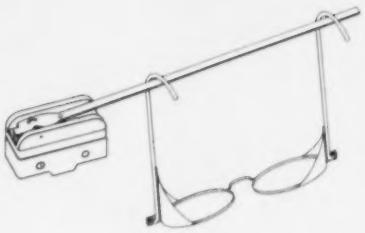


A SAFETY IDEA

Safety Switch to Save Eyes

It's a basic safety rule in using grinding wheels that the operator should wear safety goggles or the machine have a safety eye shield—and preferably both. But in many machine shops grinding wheels are used intermittently and for such brief periods of time that employees are prone to think they can safely get away with not using the goggles. Result: another eye lost!

John Minderman of Mitchell, Indiana, has come up with a solution to this problem. His idea is to use a safety interlock so the machine won't work unless the operator is wearing goggles. The way to do it is to wire a lever-actuated snap-action switch into the start button circuit of the grinder. The lever is used as a hook on which to hang the safety goggles. As long as the goggles are on the hook, the machine won't start; but when



they're taken off the hook, the switch completes the circuit so the machine can be operated. The same idea can also be adapted to drill presses, lathes, milling machines and other machine tools.

Of course there's no guaranteeing that when the operator has taken the goggles off the hook he will actually wear them. But let's face it, once the goggles are in his hand, it's just as easy to put them on as it is to put them in a pocket or lay them on a work bench.

By courtesy of "MICRO TIPS," MICRO SWITCH Div., Minneapolis-Honeywell Regulator Co.

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installed. See Figure 3.

- City, state or local safety codes should be checked, and approval obtained from building, safety and industrial commission organizations on all big scaffold and building projects.
- Use the frame's ladder steps to climb up and down the scaffold. Do not climb on the braces.
- Scaffolds should be thoroughly inspected after erection and periodically while in use, checking all wing nuts, locks and bracing; and always add extra bracing and frames spaced closer together when in doubt about the load and loadings.
- Do not allow any scaffold parts to be removed at any time without permission from proper authorities.
- When work is being done overhead or on more than one level, protect the lower working levels with suitable overhead canopies for protection from falling objects.
- When wire rope is used, inspect it on each job.
- Rolling-tower tubular steel scaffold units should be limited in height to four times their narrowest dimension for safety. For greater heights add end frames to the base of the tower, use outriggers, tie scaffold into building, or guy it.
- Lock the casters of rolling scaffolds with caster brakes when scaffold or tower is in position for working.
- Never move or roll a tower scaffold of any kind with workmen on it.
- Rope off the areas under scaffolds as "Unsafe" for workers because of the danger of falling materials and debris.
- Use bracing at all points provided and, whenever in doubt, add additional bracing to assure more rigidity and stability.

Pictures by courtesy of Bil-Jax, Inc.

Safety Training Course for Executives

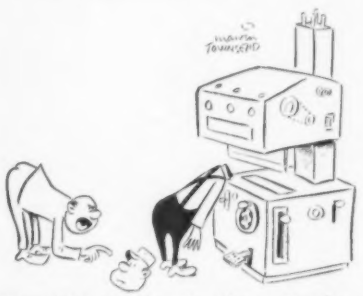
Four regional Master Safety Training Institutes are being held in 1959 by the Heinrich-Lateiner Master Training Institute for Accident Prevention and Efficient Production. The four conferences are being arranged by U. S. Gypsum Company which is enrolling ten of its personnel in each of the Institutes, but the courses will also be open to ten additional candidates from other companies.

Conferences have already been held in New York City and in Dallas. The remaining courses are scheduled for Chicago (April 13–16) and San Francisco (May 4–7). The four-day conferences review the basic program of the Institute and provide the knowledge, skills and materials for the Advanced Safety Training Course.

A five-day course will be held in New York August 10–14, and will be limited to 30 participants. As the materials, subjects and training methods are placed at management level, only suitable key personnel should be selected as participants. The Institute will prepare them to train supervisors in the control of employee performance, to train safety trainers, and to improve safety organization and administration.

Both H. W. Heinrich and Alfred Lateiner, who conduct the courses, have had wide experience in the supervisory aspects of safety in relation to production and have authored books and articles on the techniques of safety supervision.

For more information about the Institute, write to: Heinrich-Lateiner Master Training Institute, Box 55, Mamaroneck, N. Y.



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(For details, use Key # D-8 on card on page 1)

IS THERE A POWER SWEEPER

by **RICHARD F. EHMANN**
Assistant Supervisor of Cleaning Standards
Central Maintenance Engineering Division
Operation Services Department
The Port of New York Authority

Where can power sweepers be used?
What types of sweeping units are available?
How to select a power sweeper.

Fig. 1—Mechanical sweeper being used on one of its regular rounds in front of Newark Airport Terminal building.

The use of power sweeping equipment should return to the user value in terms of quality performance plus manpower and dollar savings. In the past we have been quick to accept and purchase any new powered or mechanical gimmick that promised to 1) do a better job, 2) save manpower, and 3) save dollars. Therefore, in discussing power sweepers, let us consider the areas to be cleaned, the problems involved, and the equipment to be used in each specific operation.

Some of the areas requiring some method of sweeping are:

Public lobby areas and sidewalk entrances.

Sidewalk and curb areas.

Manufacturing and processing work and aisle areas.

Warehouse floors.

Street and roadway surfaces.

Parking lots and garage floors.

Confined and obstructed outside areas such as airport ramp areas, and pier or terminal areas.

Starting with public lobby surfaces, two operations are involved —policing and sweeping. The policing of these surfaces requires the picking up of cigarette butts, loose papers, candy wrappers and miscellaneous trash, with a pick-up pan and toy corn broom. These same surfaces, when foot traffic permits, can be swept with a 24″ or 36″ floor brush. Sidewalk areas adjacent to these building lobby areas can be cleaned, again depending on foot traffic, with either the pick-up pan and toy corn broom or a Grade C street broom. In either operation, we are talking about a minimum effort with little expenditure for equipment. Manpower-wise, we are talking about 50 to 60 thousand square feet per hour for the policing of these areas, and for sweeping these same areas, 10 minutes per 1,000 square feet.

For sweeping such areas as sidewalks and curb areas adjacent to sidewalks, there are a number of possibilities depending on the size of the areas, the traffic conditions and of course the soil conditions. If we are dealing with relatively small areas we can sweep with a Grade C street broom. However, if the area is sizeable, then we feel that the use of a mechanical, pusher-type, sweeper of a 20″ to

Fig. 2—With street broom, pick-up shovel and cart, an employee cleans the general ramp area at the airport.

Fig. 5—Above is a road sweeper. This power machine is used frequently at airports and is also in demand at parking lots and other similar large areas.

IN YOUR FUTURE?

Fig. 3—A road sweeper. It carries a rotary sidebrush, can be used for indoor as well as outdoor service.

26" brush size is justified. (See Figure 1) The mechanical sweeper is not expensive and will do the type of job required in these areas. In addition, it is not a motorized unit and therefore is not subject to constant repair and cannibalization (which is stealing parts from a like unit to keep the other one operating). Nor is it required that each man who uses the equipment make what he thinks are expert adjustments to make the sweeper run more smoothly and efficiently.

Many of the power sweepers of similar brush size are too small for the job required, and it becomes too easy for the operator to experiment with his personal mechanical know-how. In most cases the small power sweepers end up as toys for frustrated sulky drivers. The pusher-type mechanical sweeper has only a few moving parts—the wheels, the brushes and the drive belt working off the wheels, and of course the operator. Only a simple operation is required to sweep with this unit—you push it. Relative to manpower requirements, a machine of this type will sweep approximately 15 to 20,000 square feet of floor area per hour.

For street and roadway sweeping, or for sweeping curb areas in locations where many obstructions are encountered, such as parked cars, we find that the operation can be adequately handled with a Grade C street broom, a scoop shovel, and a two wheeled trash cart. (See Figure 2) This operation of course is slow and time consuming and results in coverage of about 700 linear feet per hour.

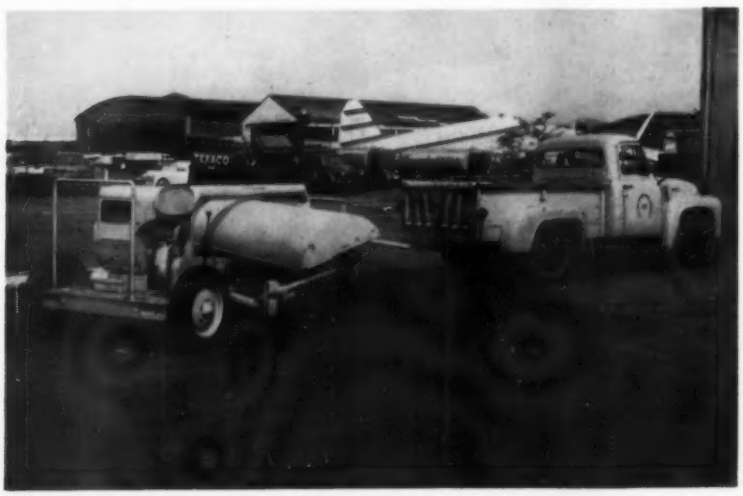

Fig. 4—A road sweeper of the tow type. It brushes soil, other types of debris to a side area. From there it can be picked up and carried away.

Warehouses & Manufacturing

For sweeping operations in locations such as warehouses, manufacturing and processing work and aisle areas, parking lots and garages, wide and extensive sidewalk areas, confined areas such as airport aprons or perhaps freight and pier terminal areas, we find that they can be economically and satisfactorily swept with small power sweeper units. In some situations, however, it may not be possible to employ power sweepers because of: 1. physical structure and obstructions, such as beams, columns, or manufacturing machines; 2. the nature of the operation or process carried on in the area, for instance

food preparation; or 3. the soil type or soil accumulation, such as excessive oil or liquid spillage, long strands of wire or metal strapping and large pieces of bulky trash. The type of power sweeper best suited for these areas has a revolving cylindrical brush 36" to 48" long and may be supplemented with a side or curb brush. (See Figure 3) A vacuum system provides for fine dust collection so that this method of sweeping can be considered "dry sweeping," eliminating the use of water to keep dust down. Debris is picked up and swept into a hopper with a capacity of approximately 10 cubic feet. The operation of this type of sweeper is relatively simple, but it is important that the worker be trained in the operation of the equipment to insure a quality performance, as well as provide for care of the equipment. Such training will prolong the life of the machine and thereby give longer and more efficient service.

As for a time standard for these operations, it is difficult, virtually impossible, to set any one hard and fast time standard that will apply in all cases. This is of course due to the many difficult problems of obstructions and soil types encountered in the sweeping operation. For what it is worth we can mention that a sweeper of this size can sweep an open extensive concrete surface in a terminal area at a rate of 35,000 square feet per hour.

Sweeping of extensive street or roadway areas, parking lots located in suburban shopping areas, industrial parking lots, or other similar large open areas, are efficiently swept with large power sweeping equipment. Sweepers of this size (See Figure 5) are equipped with a rotating cylindrical center brush, 72" long, and a side or curb brush approximately 24" in diameter. A water tank and spray system is built in for dust control. The hopper will hold about 36 cubic feet of debris. Again it is difficult to set a time standard for the operation of this machine, but the results of a study we have recently conducted showed that a man could sweep 15.7 total miles of roadway in an eight hour day. This time included such items as get-ready time, refilling the water tank when necessary, normal breaks, lunch period, emptying the hopper, and ½ hour for cleaning the machine and for lubricating vital parts of the machine at the end of the work day.

Check List of Factors In Selecting Power Sweepers

1. **Type of floor surface to be cleaned.**
2. **Amount of soil accumulation.**
3. **Type of soil encountered.**
4. **Manpower and dollar saving potential.**
5. **Frequency of sweeper use.**
6. **Required sweeper maintenance.**
7. **"Wet" or "Dry" sweeping methods.**
8. **Dust control through vacuum units, and types of filters.**
9. **Types of vacuum units on the sweepers.**
10. **Gasoline, battery or liquid petroleum gas powered.**
11. **Composition of sweeping brushes.**
12. **Hopper capacity.**
13. **Method of soil pick up and conveyance to hopper.**
14. **Manual or mechanical emptying of hoppers.**
15. **Ease of operation including maneuverability.**
16. **Protection of mechanical parts of sweeper from soil and dust.**
17. **Evaluation of results from sweeper demonstrations.**

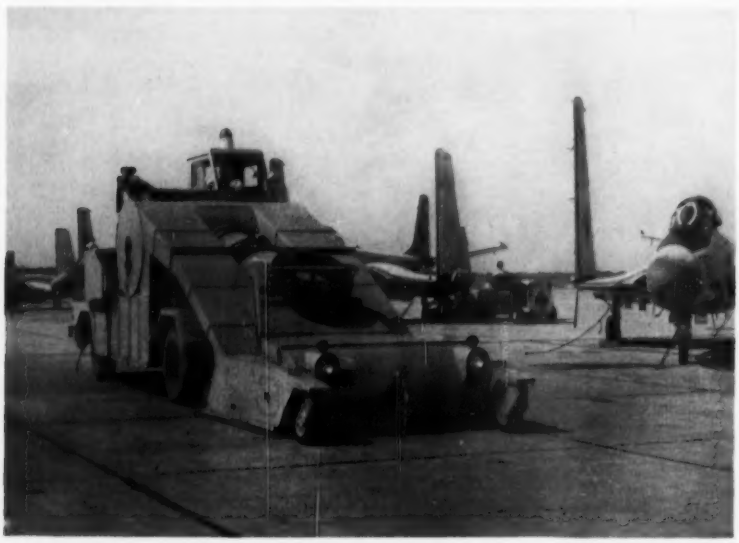

Fig. 6—Mammoth vacuum sweeper which is used in clearing jet plane runways, aprons. Has cleaning width of eight feet, an 80 cubic feet hopper.

Specialty Sweepers

One group of sweepers not yet mentioned but worth mentioning is that which we call Specialty Sweepers. Here we find at least three types that are available for particular problem areas.

For instance, in the sweeping of airport runway areas or roadways, there is available a Tow-Type Powered Brush Sweeper. (See Figure 4) This machine sweeps by an angle-pitched, power driven, revolving brush which is towed behind a truck. This type of sweeping operation is not designed to pick up soil, but rather to sweep it off the runway into adjacent

(Continued on page 63)

Plant Maintenance & Engineering Show-Pt.2

Highlights from several of the meetings of the Tenth Plant Maintenance and Engineering Show and Conference were presented in the March issue of "Safety Maintenance." Here are resumes of some of the other speeches given at the recent conference in Cleveland.

***"Maintenance In Small Plants (Up To 50 Maintenance Employees)"*—Milton M. Smucker, supervisor of maintenance and development, North Vernon Div., Thompson Industries, Inc., North Vernon, Ind.**

Our company produces structural members for the automotive industry and has 200–250 employees. Normally we have 5–6 maintenance men, one of whom is a group foreman under my supervision. We also have three janitor-watchmen.

Our maintenance men are trained in phases of the work for which they show special aptitude. We prefer to do our own training in maintenance methods instead of hiring people experienced in their fields. For example, we trained an experienced auto mechanic to handle the repair of our fork trucks. Another man is our lubrication expert who had previously worked with a lubrication engineer who had recommended lubricants for all our equipment. One man makes weekly fire inspection reports on all fire equipment, including extinguishers, the sprinkler system, and hose equipment. Our insurance carrier has commended us for this procedure.

Other men handle all carpentry and related work, and one man on each shift is trained in resistance welding. We keep a posted list of the specialties and work experience of each man so that they can be assigned with the least amount of supervision.

The maintenance of our large number of dies and special tools is handled by a tool room force of 10–15 toolmakers under the supervision of the tool room superintendent. One man is in charge of the tool crib and uses a file system for control of tool supplies and usage.

Major repairs to buildings and installations are usually let out to local contractors. We use preventive maintenance on all our equipment, with a cross-reference card file system. One set of cards is for regular inspection of machinery; and the other is to give basic information for each piece of equipment.

***"Maintenance In Small Plants"*—N. R. Crisler, maintenance superintendent, Muscle Shoals Plant, Diamond Alkali Co., Sheffield, Ala.**

In a plant requiring less than 50 maintenance people, craft supervision can be relatively expensive. Why not then consider area foremen? Most plants of our size can easily and logically be divided into two or three areas, each with a maintenance foreman and a crew that has all the skills necessary for that area. The success of this arrangement depends on the foreman, who must be selected with great care. The size of the maintenance force depends on a number of factors, but a growing tendency is to have a force capable of handling just maintenance jobs (not small construction work), with emergencies covered by overtime and with big repairs and small construction through reliable contractors.

Work scheduling should be done with production supervisors every week. Paper work is necessary to control costs, but it can be overdone and lead to duplicated effort. To save time and money on work orders, for example, try to limit the

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forms themselves to one design which will encompass all types of maintenance. Paper work for preventive maintenance is particularly important. We have found that representatives of the companies that produce business forms are helpful in setting up such a program.

***"Maintenance In Large Plants (More Than 500 Maintenance Employees)"*—R. F. Babbitt, maintenance superintendent, Union Carbide Chemicals Co. Div., Union Carbide Corp., Texas City, Tex.**

Our four main raw materials are refinery gas, natural gas, air and water. From these we make 61 chemicals, plastics, and gases. We employ 725 operators and 986 hourly maintenance employees. Our maintenance department also has 131 salaried employees, of which 93 are supervisory and technical personnel.

Some years ago as a small plant, our Maintenance Department was centralized, but with the plant's growth we have been swinging to a decentralized function, until our present system is a combination of centralized and decentralized control. The decentralized functions cover four areas: Gas, Chemical, Resins, and Utility. Each area has an Area Foreman who is responsible for all maintenance within his area.

The six centralized functions are:

Central Planning, which plans and mans large shutdowns, arranges temporary transfers between groups and areas, and plans the work of our evening shift and rotating shift organization;

Shops, which include machine pipe welding, sheet metal, air conditioning, instrument repair, automotive electrical, structural steel, and boiler. The Machine Shop performs routine repair work, makes many mechanical parts designed within our plant, and has many special purpose tools. The Electrical Shop has facilities for cleaning, drying, repairing, varnish dipping and furnace baking of stators for our 5,000 electric motors.

Personnel, which assures uniformity of policy administration, schedules vacations, keeps absentee records, gives labor contract advice and trains maintenance personnel, including apprentice, craftsmen and supervisory.

Maintenance Engineering, which includes industrial engineering to improve methods and organization, machinery engineering to improve the maintenance and operation of mechanical equipment, civil engineering, equipment test and inspection, and sanitation service.

Maintenance Contract Section, for utilizing outside contractors. We use contractors in order to level off peaks in manpower demands, to handle special jobs for which

we have no skill, to fulfill our labor agreement for certain construction work, to speed certain seasonal work that weather conditions could hamper.

Material Control, which specifies and selects much of the material stocked and used by the maintenance department.

***"Maintenance In Medium-Sized Plants (Up To 300 Maintenance Employees)"*—J. M. Conrow, works engineer, Longhorn Div., Thiokol Chemical Corp., Marshall, Tex.**

As producers of rocket motors, our plant has some unique problems, illustrated by the high ratio of maintenance-plant engineering personnel to production employees. But our basic maintenance philosophy is the same as that found in the more conventional plant.

Good maintenance supervision must be made, not purchased. In a wide-spread operation such as ours (8600 acres), close supervision must be maintained. If two men are sent out on a job, one must be in charge and held responsible. This "working leader" technique is a good method of uncovering potential supervision.

Preventive maintenance, to be fully effective, must extend to all elements of plant operation. It requires careful study to establish an effective system. Inspection is an essential part of the program, but inspection without follow-up is worthless. Properly planned and scheduled workloads will reduce maintenance costs far beyond the cost of producing such plans. Clerical support to maintenance supervision relieves supervision of much routine work. Control of stocks and stores is a cost-saving requisite.

***"Preventive Maintenance, A Case Report"*—Edward C. Denny, maintenance engineer, "Courier-Journal" and "Times," Louisville, Ky.**

All procedures in the maintenance department are built around Building and Equipment Account Numbers. These code numbers indicate the department, the equipment number, and the type of maintenance required.

To set up a preventive maintenance program, we used these numbers as a guide, with an inspection team of an electrician and machinist scrutinizing each piece of equipment. They used a check list to record items such as leaks, cleanliness, mountings and alignment, guards and covers, safety, electric button switches and wires, mechanical condition, abuse and overload, adjustments, lubrication, paint, bearings, etc.

Preventive maintenance schedules were drawn up for weekly, bi-weekly, monthly, quarterly, semi-annual, or annual inspections. The maintenance engineer could then schedule preventive maintenance work as required and follow up on the completed work.

It is possible to extend a preven-

(For details, use Key # D-11 on card on page 1)

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tive maintenance program too far. Exhaust fans in halls, door checks, pallets, water coolers, etc. should not be included. Let them be repaired when they malfunction. The preventive program should be limited to essential production facilities and equipment that would stop production or cause spoilage if it failed.

"Preventive Maintenance, A Case Report" **—L. H. Clark, manager, plant facilities, medium transformer dept., General Electric Co., Rome, Ga.**

Our plant was built five years ago and is used for heavy tank fabrication, core and coil manufacturing, and assembly. Our preventive maintenance system has produced these results:

1. We have reduced our operating costs and at the same time increased our maintenance burden.
2. We have systematized our operation and established a firm base from which we can perfect a scheduled maintenance program.
3. We are gathering valuable data to guide us in arriving at our future objectives, which are to reduce unscheduled maintenance to a minimum, integrate the program as part of the production program, and execute it at the optimum cost in relation to our departmental operation.

We devised a machine history code that would tell us what repair work had been done on a machine. This system points out where maintenance is having repetitive trouble. Working with operating supervisors, we have set up fixed-date maintenance for groups of machines. Building service items, such as emergency lighting, pumps, fans, cranes, etc., also have scheduled maintenance.

"Counteracting Water Pollution" **—Grant A. Pettit, industrial waste engineer, Armco Steel Corp., Middletown, O.**

Our plant recently completed the final step of its program in the treatment of mill scale wastes from the continuous strip mill to conserve water and abate water pollution of the Miami River. These mill scale wastes contain a large amount of iron oxide scales, along with oils and greases from the rolling mill. Originally the plant had conventional settling basins, but

with enlargements of the plant the basins became inefficient and considerable scale and oil were entering the plant sewers.

Our first remedial step was to make a complete survey to determine: the flow of wastes; suspended solids to be removed; characteristics of the wastes; settling characteristics; and efficiency of the old basins.

Our engineers designed the following effective method of waste collection: a sedimentation basin with three parallel chambers, each with an oil-skimming pipe, with effluent going under a baffle and over a weir. Straight line collectors were installed for scale collection, dewatering and removal. Each collector consists of two parallel strands of combination promal and steel chain, with channel steel flights at 4-ft. intervals. Scale is delivered from the collectors to three hoppers and then by belt conveyor to railroad cars. Chemical coagulants were used as required to aid the removal of very fine scales that will not separate by gravity.

***"Counteracting Air & Water Pollution"*—O. C. Thompson, coordinator, waste abatement, Union Carbide Chemicals Co. Div., Union Carbide Corp., South Charleston, W. Va.**

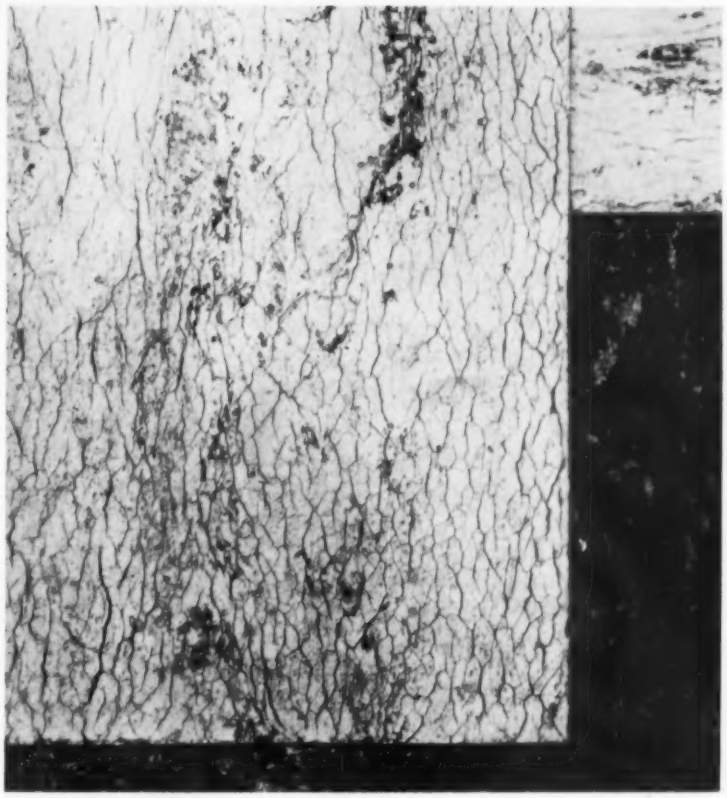
Each company will have differences in its approach to air pollution; but there should be a clearly understood company policy concerning it. Our company's written policy puts the responsibility for plant wastes control squarely where it belongs—on plant management. It also makes clear that control of wastes begins with product research and development in the laboratories, and that this control is extended through engineering and the design and construction of each plant.

The following steps are recommended for the organization and operation of plant air pollution control:

1. Place the responsibility on a qualified individual;
2. Form a committee with representatives from each of the major departments;
3. Assign inspectors to report excessive emissions;
4. Evaluate the problem, first, by making an inventory of emissions

(Continued on page 32)

HOW POOR MAINTENANCE RUINS — rubber tile



While rubber tile floors are non-porous and resist warping and buckling and are resistant to acids, mild alkalis, and many stains—the continued use of alkaline or caustic cleaners can bring about the same disastrous results as with the asphalt tile floors described in the March issue of "Safety Maintenance". The drying out, checking and cracking of this rubber tile floor has been traced to the use of so-called "fast acting" cleaners.

Rubber floors are made chiefly of synthetic rubber fillers and mineral pigments. The alkaline salts present in the harsh cleaner used on the floor shown in the illustration have robbed the rubber tile of all of its "life". The properties that once made this floor resilient have been eaten away leaving the hard, brittle, cracked and lifeless surface.

The Rubber Manufacturers' Association, Inc. makes this warning about the care and maintenance of rubber tile: **"Oils, greases, sweeping compounds containing oil, or treated mops should never be used, nor should gasoline, kerosene, naphtha or other solvents be used to remove spots from floor. Never paint, varnish, lacquer or shellac a rubber floor."**

In the May issue of "Safety Maintenance" there will be a special article on how poor maintenance ruins linoleum flooring.

Material by courtesy of Hillyard Chemical Co.

Entirely American Made

the Rapido Line

Fastest Custom Fit Frame In The World

FITS ALL YOUR WORKERS COMFORTABLY:

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- Universal Nose Bridge, a perfect fit for every worker.

ACCOMMODATES YOUR PRESENT STOCK OF 57 LENSES:

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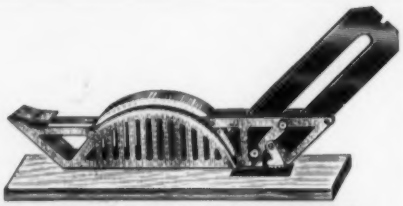
For details, see your Authorized Eye Savers Supplier

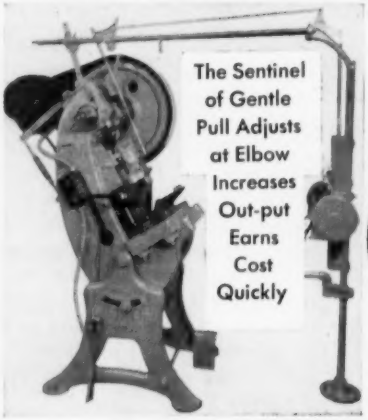
WATCHEMOKET OPTICAL CO., INC.

232 West Exchange St. PROVIDENCE 3, R. I. *In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26, Winnipeg.*

(For details, use Key # D-14 on card on page 1)



APPROVED SAFETY GUARDS AND MAGNIFIERS



Removing hazards from machines in Industrial Plants will save millions of dollars for Insured and Insurer . . . also LIFE, LIMB and SIGHT!

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Visit our Booth, Greater New York Safety Congress, Statler Hotel, New York—April 13–17

(For details, use Key # D-15 on card on page 1)

Plant Maintenance Show

(from page 31)

and then finding remedial measures such as engineering redesign, a housekeeping campaign, educational program;

5. Inform your employees of their part in the program by posters, articles, group meetings, etc.;

6. Keep the program going—don't let it deteriorate after a fine start;

7. Cooperate with other industries in the area for exchange of information and solution of mutual problems;

8. Win the confidence of civic leaders, health officers and other public agencies so they can understand your problem;

9. Develop good community relations by telling your employees about your control program, arranging plant visits for employees' families and other groups, keeping enforcement agencies informed of your program, handling pollution complaints promptly, and establishing good press relations.

***"Lubrication"*—J. H. Fuller, consultant supervisor, engineering department, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.**

A planned program of lubrication offers a multitude of benefits: protecting high-cost machines, reducing operating costs of equipment, increasing the service life of equipment, reducing lubricating costs themselves through properly planned frequencies.

To obtain the advantages of an engineered lubrication program, this four-point program is the most effective:

1. Establish lubrication schedules.

2. Organize and train personnel.

3. Control variety, distribution, and quantity of lubricants.

4. Replace or redesign equipment to minimize lubrication.

***"Maintenance By Outside Contractors"*—Norton M. Brown, plant engineer, Pennsalt Chemicals Corp., Wyandotte, Mich.**

The question of contracting outside personnel for some maintenance effort arises in every company at some time. Specific reasons for considering the contractor may include special job know-how, manpower availability, job hazards,

safety department limitations on use of own men, special tool requirements, supervisory or technical manpower needs, or special work processes. While your own employees and their union representatives may object initially to outside contract work, they generally recognize that contracted work, when it does not displace existing employees, really stabilizes their own employment. Your own employees retain their jobs, while the contractor's employees are hired and fired according to his work load.

In selecting contractors, choose ones that have had industrial experience (as opposed to residential), preferably in a plant similar to yours. Other considerations are: What kinds of tradesmen does he employ directly? Whom does he subcontract to? Can he supply adequate and competent supervision? Is his load of other work such as to interfere with your job? What equipment does he own and operate? What is his reputation with other industrial customers and with local banks? How does his price compare with others?

***"Maintenance By Outside Contractors"*—Phillip M. Kimmell, superintendent of plant engineering, Hawk-Eye Works, Apparatus & Optical Div., Eastman Kodak Co., Rochester, N. Y.**

In the past two years the practice of contracting maintenance has received an accelerated amount of attention. Several large refineries and chemical plants, mostly new, have signed contracts for all of their maintenance, and others are contracting a larger amount than formerly.

Should you contract maintenance or do-it-yourself? This must be decided primarily on the basis of these three conditions which favor contract maintenance:

1. Lack of proper skills or tools, particularly in smaller plants.
2. Wide variations in the man-hour work load.
3. Lower cost.

Contracts can be on the basis of lump-sum, unit-price, or cost-plus payment, or variations of all three. Contracts can be brief, if clear and complete. They should be signed by authorized representatives of the contracting parties.

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THE SAFE
AND SANE WAY
TO CLEAN
Automotive and
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Ideal for the critical cleaning of Automatic Transmissions and Power Steering units.
Kleer-Flo Model 30 (less Jet Air Gun) also available
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CLEAN PARTS
3 WAYS—SAFELY!
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3. "Super Power" Jet Air Gun
For carburetors . . . ask for a Kleer-Flo CARB-U-TATOR Parts Cleaner using CARBUSOL Compound.
Rugged equipment that users enthusiastically say "pays for itself many times over in efficient time-saving, long trouble-free usage!" A continuous flow pump strains, filters and ejects abrasive foreign material and returns clean Kleer-Flo Hi-T Degreasol or M-467 Cleaning Fluids through the semi-rigid hose to the upper soaking tank. Fire hazard is reduced through the use of these high flash point solvents and by a quick action fusible link in self-closing cover.
Efficient patented electric pump is driven by a fan-cooled brushless, sparkless motor.
CALL, WIRE, WRITE TODAY FOR INFORMATION
SAFE! Leaves film that prevents rust
America's Foremost Producers of Parts Cleaning Equipment
PRACTICAL MFG. CO.
DEPT. B-4
2840 4th Ave. S.
Minneapolis 8, Minnesota
SAFE! Fast drying—leaves no film

(For details, use Key # D-16 on card on page 1)

Contract maintenance requires just as much control as do-it-yourself. Your plans and specifications must be more complete than if your own men do the work. Whether a plant contracts most or all of its maintenance, it should perform at least these functions itself: 1. Furnish its own maintenance engineering and planning group; 2. Furnish its own inspectors for preventive maintenance; 3. Furnish its own fire and safety inspectors; 4. Furnish its own liaison between company and contractor.

Britain's Mr. Safety

(from page 20)

with a pleasant-smelling disinfectant and attracted the worker's nose as well as his eyes.

"Safety" is the Council's watchword and anything that will get the message across is attempted.

At the age of 37, James Tye has become recognized as one of the world's leading safety experts. His interest in safety dates back to childhood, when one of his younger brothers was badly burned through

lack of a fireguard. Since then, safety has been "number one" with James Tye!

On leaving school, he joined the R.A.F., and served in the Near, Middle, and Far Eastern theatres of war. In 1944, he was loaned to the American Air Force in the Pacific, for technical liaison.

On demobilization in 1946, he joined a leading Advertising Agency specializing in the safety field. In 1948, he formed his own company exclusively publishing safety material. Today, Safety Publications Ltd. is Britain's largest "safety" publishing company, with branches throughout the British Isles.

James Tye was called upon to take up the honorary post of Director of the British Safety Council in June, 1957. In January, 1958, he was additionally asked to become Chairman.

He has written nearly two million words on various aspects of safety and is the author of several major publications on safety and

(Continued on page 35)

Another Accident Checked ✓

Twice Hit, Twice Wise

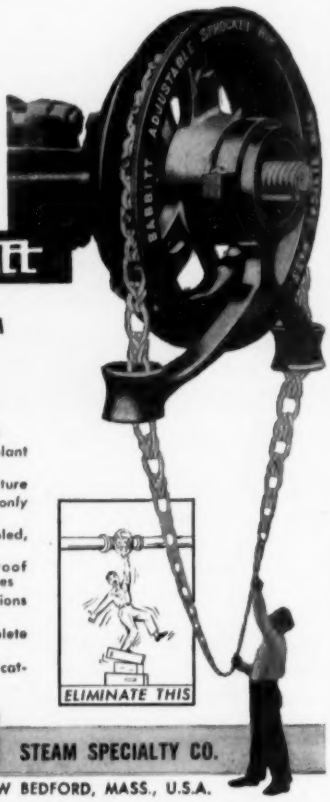
Lightning DOES strike twice and so do flying particles in hazardous industrial operations. To anyone who knows the value of using safety equipment, the fact that an accident can occur without causing injury isn't miraculous—it's common sense. To have the same thing happen again, with the same result, just proves the point.

Thanks to safety lenses, John M. Stanek of Maple Heights, Ohio, is able to see what damage might have been done to his eyes if he hadn't worn them. An employee of a Cleveland firm, Ferro Corporation, Stanek has had his eyesight saved on two separate occasions by the safety glasses he is holding. The second incident qualified him as a Special Citation Member of the Wise Owl Club of America. Special Citation Awards are made to Wise Owls who have had their eyesight saved by safety lenses on two or more occasions. He is the 34th Special Citation Member in Ohio and the 255th in the nation.

Particles do strike twice. In both instances, Stanek was engaged in chipping glass slag from a smelter when a piece of the material flew into his protective glasses.

11-8

Safe Operation
of
Overhead Valves
with a
Babbitt
Adjustable
SPROCKET RIM
with Chain Guide



- Simplifies pipe layout
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- Easy to install and operate
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- Your supplier carries complete stocks
- Write for new descriptive catalog sheet and prices

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11 BABBITT SQUARE, NEW BEDFORD, MASS., U.S.A.

(For details, use Key # D-17 on card on page 1)

GETS-A-LITE GUARD and GUIDE
Quickly and Easily Installed by Anyone — No Tools Needed!

- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefinitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER removed.
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket, enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

GETS-A-LITE Company—Dept. SM-49
3865 N. Milwaukee Ave., Chicago 41, Illinois

(For details, use Key # D-18 on card on page 1)

(from page 34)
health in industry and the home, fire prevention, and safety on the highways.

British Safety Council

The British Safety Council is a self-supporting, non-profit making association with a membership of 3,000 firms (the largest membership in Great Britain) covering 3 million workers in industry. Patrons include the Duke of Bedford, three members of Parliament of Britain's two major political parties, an American, and the chairmen of several major companies in this country.

The Council came into being as a direct result of a debate in the House of Commons on June 7, 1957, when William R. Davies, Member of Parliament of the government party, deplored the appallingly high rate of accidents despite the existence of several safety organizations.

He complimented the National Safety Council of America on its effectiveness and recommended the formation of a similar and active body in Great Britain. He urged the Government to support and encourage such a national organization which would make workers safety conscious and cut accident rates and the cost to industry of over 7 billion dollars.

The Council conducts its education programs at three levels—directly to management and workers through a regular poster service complemented with pay packet slips, "Read-in-5-minutes" leaflets, brochures, films, and safety manuals.

And at a third level, through press, radio, and television. It is a recognized fact that safety at work can be dealt with effectively when the worker is off the job and relaxed. It is automatically accepted as something for his benefit as it comes from an impartial source. The effect of this service can be summed up by saying that if these media can sell soap, then they can equally well sell SAFETY!

Greater management interest in employee safety and welfare is always a boost to morale; high morale and a low accident record always go together. A Membership Certificate which proclaims management's interest in safety and welfare and makes for better industrial relations is issued to members. Many requests are received for additional certificates so that copies can be displayed in various parts of works owned by members.

Awards, in the form of a Citation, are made annually to firms with an accident record that is lower than the national average for their specific trade based on Ministry of Labour figures.

The Council has a Technical Advice Panel of experts who advise members on matters of safety without charge.

It also sets standards for safety equipment, tests equipment, and issues certificates for "safety-worthy" equipment tested by the Council's experts. The seal may be used on approved equipment, or in advertisements indicating that British Safety Council standards are met.

These Flexible Coated PIONEER Gloves

Provide Long Wearing Liquidtight Protection For Materials Handling

Neoprene Coated Flannel Stanzoil Pacemakers

Length	Style	Weight	Model
10″	Knit wrist	Light	80
10″	Knit wrist	Industrial	90
10″	Knit wrist	Heavy Duty	95
10″	Gauntlet	Industrial	100
10″	Gauntlet	Heavy Duty	105
12″	Gauntlet	Industrial	120
12″	Gauntlet	Heavy Duty	125
14½″	Gauntlet	Industrial	140
14½″	Gauntlet	Heavy Duty	145
18″	Gauntlet	Industrial	180
12″	Gauntlet	Twin lined*	225

* No. 225 designed to protect hands from extreme hot and cold temperatures.

Pylox™ Coated Jersey Stanflex

Model	Style	Size	Length
5062	Knit wrist	Men's	10″
5052	Knit wrist	Women's	10″
5232	Band top	Men's	11″
5132	Gauntlet	Men's	12″
5252	Gauntlet	Men's	14½″

the PIONEER Rubber Company
244 Tiffin Road, Willard, Ohio

(For details, use Key # D-19 on card on page 1)

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TALK YOUR WORKER'S LANGUAGE!
and keep accident costs off your books!

a new safety concept in Industrial Relations

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PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES

Your maintenance crew can double check your equipment—but only Your Safety News can solve your real safety problem. Because Your Safety News is the only printed stimulus that talks your worker's language—that maintains a check on safety consciousness among your workers. Designed to promote better employer-employee relations—Your Safety News makes safe thinking—habit thinking!

Packed with colorful pictures that are visually persuasive and to the point, Your Safety News gives snap to your message with its light, direct, common sense approach . . . makes safety interesting and down to earth. Twelve times a year it covers the complete range of accident hazards in industry, at home, in transit to and from the job—plus on the job safety precaution. Acclaimed by leading industrial firms nationwide. Gives employers the advantages of direct employee contact.

AND . . . it can be personalized with your company name and the signature of one of your executives. It identifies you with your message, thus, it effectively boosts morale and brings you next to your workers.

Make Your Safety News your own safety publication . . . a good will ambassador working to keep your employees off the accident list—and costly accidents off your books! A monthly message from employer direct to employee . . . that nudges instead of bludgeons workers to safety consciousness.

Remember, one accident avoided more than pays the cost of a year's subscription!

EACH WORKER SEES HOW CLEARLY SAFETY BENEFITS HIM...HOW DOING HIS PART HELPS OTHERS. YOU CAN GET ENTHUSIASTIC SAFETY COOPERATION INSTEAD OF TOLERANCE...FROM EVERY EMPLOYEE ...EVERY MONTH!

YOUR SIGNATURE HERE

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For complete details on PROJECTED SAFETY CONTEST PROGRAM write to Contest Division.

YOUR SAFETY NEWS

DESIGNED FOR YOUR SAFETY

TIME FOR THE RABBIT'S FOOT?

This remarkable invention is a Safety Alarm Clock. Actually, it doesn't have a bell or any other audible alarm. Instead, it can be set to slip you a rabbit's foot at a specified time.

There are, however, still some "bugs" in this gadget — such as, how are you going to know when an accident will strike in order to set the clock? Then too, a rabbit's foot isn't very reliable in preventing accidents.

As we see it: Don't forget — the rabbit's foot didn't even help the rabbit!

WHEN DOES TIME SPEED UP?

You don't have to be an atomic scientist to figure out that, often, every second is so important that time seems to speed up. One example is when a person is injured and every minute is vital to prevent infection.

Watch Out For Googols!

The reason that cuts and scratches must have immediate medical attention is that there are googols of infectious bacteria everywhere. Now, a googol isn't a kind of bacteria; it's a number, like a million or a billion. The word "Googol" was invented by a mathematician to represent the astronomical figure of a 1 followed by 100 zeros.

In spite of all these millions, billions and googols of harmful bacteria, Mother Nature has given the human body some protection against them. And the body's first line of defense is the skin, which acts as a shield and gives them no place to grow. BUT, whenever the skin is broken, even if it's just a scratch, the gates are thrown open to infection. A cut or a scratch may look small to you, but to bacteria it looks like the Grand Canyon! So . . .

1. *Get immediate first aid. Don't wrap a handkerchief around it.*
2. *In treating minor cuts at home: First, wash your hands with soap and water. Then cleanse the wound area with soap and running water. Use an antiseptic and cover with sterile dressing. Remember:*

Don't laugh away a cut or scratch; every minute counts—time speeds up.

Don't let the googols get you.

Some people live to a ripe old age. Others say, "It's only a scratch."

ACCIDE

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Some Tips

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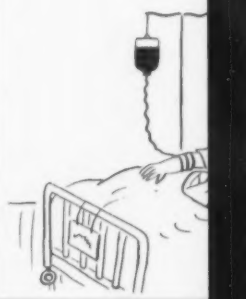

ODITIES

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utting blinders

If you're out on a limb . . .

. . . because you don't know how to do some job safely, don't just hang there waiting for the laws of gravity and accidents to take effect. Ask for help from your foreman. He'll rescue you with the ladder of safety experience.

". . . and you'd better keep that tin cup handy. With your goggles so dirty, you must be half-blind most of the time."

* * *

An optimist will tell you that a bottle is half full — a pessimist will say it's half empty.

* * *

Someone said that courtesy is contagious. Safety is too. Let's start a couple of epidemics!

WANTED

The Notorious Villain — Unsafe Tools

Also known as "Mushroom Head", "Loose Head", "Dull Edge", "Splinter Handle" and other aliases too numerous to mention.

Any information leading to the capture and conviction of Unsafe Tools will be handsomely rewarded.

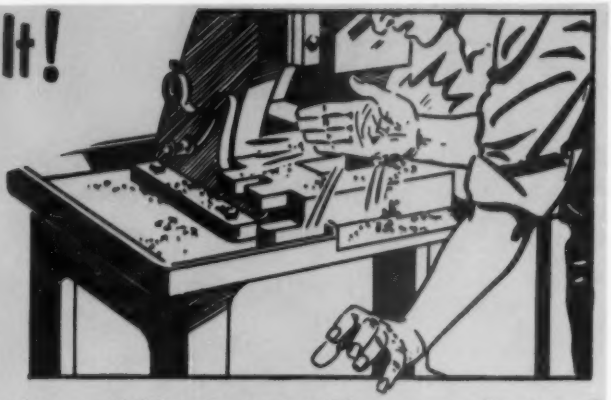
Reward: All members of the posse that gets rid of Unsafe Tools will be rewarded with safety.

* * *

Turn in any company equipment that is unsafe. Keep your own in good shape. By the way, Sheriff, you're supposed to hammer only with hammers . . . not wrenches, pipes or the butt of a gun.

Hold It!

CLEAN UP THE SAFE WAY...



There's a safe way of doing most everything — even cleaning off a machine. You can easily get many small cuts, and some serious injuries too, from using unsafe cleaning methods:

- **Never clean up a machine while it's still running.**
- **Don't use your bare hand to remove chips. Use a brush or wiper.**
- **When you leave scrap, chips and oil scattered around the floor, you are headed for a fall. Sweep chips into a neat pile. Wipe up oil and grease spills immediately.**

An honest father wrote to the college's Dean of Admissions, carefully stating his son's qualifications, "While he is not an outstanding leader, he does follow well."

Back came the Dean's reply, "We have already admitted 320 leaders to next year's freshman class and desperately need your son since he is the only follower."

The only trouble with trying to kill two birds with one stone is that both birds usually get away.

Modern Times: A mother and her young son were shopping in a supermarket. The boy, trying to be helpful, picked up a package and brought it to her. "Oh, no, Junior," protested the mother. "Go put it back. You have to cook that."

"Now let's see — glass 95 cents, cutter $2.50, bandages and antiseptic 65 cents, new slipcover $16.50, comes to . . . !"

FOR THE MISSUS

by Margo Fulton

PICTURE HANGING TIPS: If you have several small pictures that you want to hang, instead of scattering them around on various walls, give them dramatic emphasis by grouping them together in one area. Even if the sizes and frames are different, they can be arranged attractively. And in hanging pictures, apply a small piece of Scotch tape or adhesive tape to the wall where the nail is to go. When you drive the nail through the tape, it will keep the plaster from crumbling.

PERKY COLORS: Women's suits of gray flannel or other subdued shades are always in fashion; but they often need a colorful blouse or scarf to perk them up. Flower-printed challis or Paisley wool make good contrasts; or for a crisper touch, how about polkadots?

KITCHEN SAFETY TIP: When removing hot dishes from the oven, take your time. Haste and quick movements lead to burns and spills. It's a good idea to have a counter or table near the oven so you don't have to carry the dish very far.

Health Physics Society Meeting

The Health Physics Society will hold its fourth annual meeting June 18, 19, and 20, 1959 in Gatlinburg, Tennessee. This international organization, although new in formation, is growing rapidly and includes 1100 professional health physicists both in the United States and abroad. Further information can be obtained from: G. T. Saunders, Chairman, Publicity Committee, Health Physics Society, c/o Kewaunee Manufacturing Co., Adrian, Mich.

Poor Drivers Studied

Drivers with bad accident rates are most likely to be financially irresponsible, horn-honkers, car decorators, psychologically immature, and promiscuous. They also have above-average interest in drinking, sports and gambling, according to an article on industrial accidents in the December 1958 "Industrial Bulletin," the monthly magazine published by the New York State Department of Labor.

This is the finding of Dr. William A. Tillman, of the University of Western Ontario, who made a study of the personalities of taxi-cab drivers and ordinary drivers. By evaluating a complex of factors, Dr. Tillman concluded that "A person drives as he lives."

In another article, Dr. Flanders Dunbar, psychiatrist, asserts that some people are markedly susceptible to accidents, just as others are to the common cold. Their "affliction," she notes, today outranks cardiovascular disease as a destroyer of the working years. Dr. Dunbar holds that a first accident should be treated as if it were a first coronary attack and as carefully analyzed.

In the same issue, Dr. Isador Lubin, Industrial Commissioner, says that the New York State Labor Department's consultative safety program sharply cut the rate of injuries in those industries to which it has been applied. Over-all, about one of every five previous injuries has been eliminated. This rate of decline is ten times as great as that in firms not using the new safety program.

Phosphorus Pentasulfide Safety

Safe handling practices for phosphorus pentasulfide, a highly reactive intermediate used in making insecticides and organophosphorus compounds, are described in a new safety data sheet just issued by the Manufacturing Chemists' Association. The manual details safe handling practices for chemical workers, since phosphorus pentasulfide reacts rapidly with water or with the moisture in the atmosphere to release hydrogen sulfide, a poisonous flammable gas.

The safety booklet shows how hazards can be avoided, describes protective equipment for high gas concentrations, recommends safe handling containers and waste disposal methods. First aid measures and suggestions for physicians also are included.

In addition to its importance in insecticide manufacture, phosphorus pentasulfide is used in production of lubricating oil additives and as a catalyst in the production of air-blown asphalt for roof surfacing.

Copies of "SD-71, Phosphorus Pentasulfide" are available for 30 cents a copy from the Manufacturing Chemists' Association, 1825 Connecticut Ave., N. W., Washington 9, D. C.

Occupational Health Courses at UCLA

Dr. Jean S. Felton has been appointed Professor of Occupational Health at the University of California Medical Center at Los Angeles, in both the School of Public Health and the Department of Preventive Medicine. Prior to Dr. Felton's affiliation with UCLA, he was Professor of Preventive Medicine (Occupational Medicine) at the University of Oklahoma Medical Center, and for eight years before that, Medical Director of the Oak Ridge National Laboratory, Oak Ridge, Tennessee. A new Division of Occupational Health will be initiated in the School of Public Health, in which a graduate curriculum will be developed, utilizing not only the faculty and facilities of the Medical Center, but the personnel of the great number of industries in the Los Angeles metropolitan area.

WHAT'S THE PRICE OF A SAFE WASHROOM?

The price industry has to pay is higher absenteeism, dermatitis and increased maintenance when adequate facilities are NOT provided.

In this day and age the provision of wash-up facilities for personnel is of course taken for granted. But what a difference there can be in the efficiency provided by these facilities and the maintenance required for them! While well-planned washrooms, utilizing modern equipment, can handle adequately and economically the specified number of employees without congestion, undersized and outdated washrooms lead to increased costs.

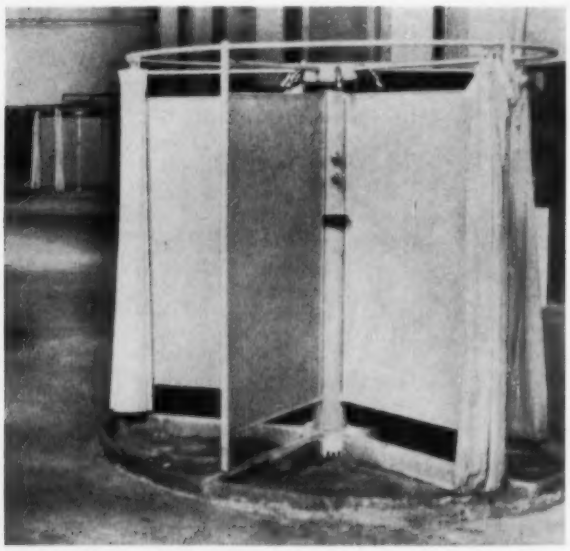


Fig. 4—Here again, efficiency, safety and economic use of space is combined in this circular, five-compartment shower.

Fig. 1—Above foot-treadled washfountain is designed for simultaneous washing by two persons. Note ease of access.

Inadequate and crowded wash-up facilities mean that individual workers do not thoroughly remove dirt, grime and oil from the skin. In their haste to finish washing in order to quiet the grumbles of those awaiting their turns at the wash basins, harmful chemicals and bacteria will be left on the skin to endanger the workers' health. The final result is increased absenteeism.

Then there is the costly problem of industrial dermatitis. The price employers pay for dermatitis is not only absenteeism but also, in many cases, higher compensation premiums. The problem of dermatitis control stretches all the way across industry from the corner gasoline station to the most mammoth assembly line; and with new materials introduced yearly, new dermatitis problems continue to arise. Not everyone agrees about the exact causes of occupational dermatitis nor about what measure or combination of measures will be best for eliminating it in specific cases. But all authorities do agree that, no matter what other measures are initiated, the most important single factor in preventing dermatitis is suds and water—the thorough removal of occupational soil from the skin.

Maintenance Problems

Also adding to the **continuing** overhead costs of inadequate washroom facilities are the increased charges for maintaining the area and equipment. If workers have to wash in haste and elbow each other aside, then there is going to be considerable splashing around of dirty suds and littering of floors with towels. The dirtied washroom can mean a greater work load in janitorial and sanitation operations.

One more item of higher cost should be considered, and that is the question of employee morale. It is an insult to employees if they are not given clean and adequate wash-up space. Inadvertently, they are being classified as slobs who don't deserve any better. Consciously or unconsciously, employees resent dark,

Fig. 2—The semi-circular washfountains shown above have been designed specifically for washrooms of medium size.

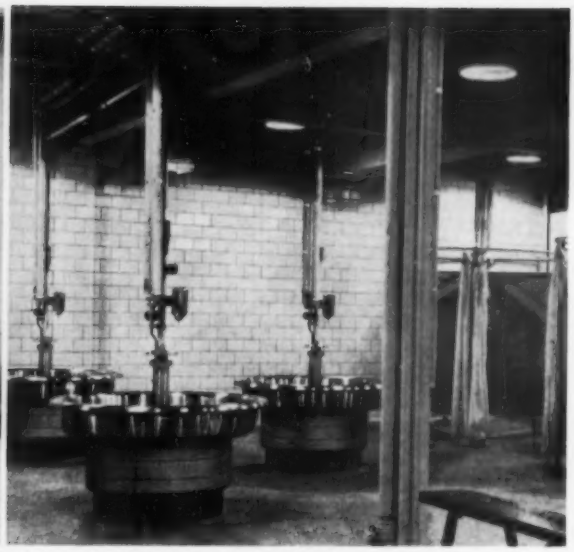


Fig. 3—Providing the most satisfactory use of space are these three stainless steel washfountains in a steel plant.

dirty, crowded washrooms, and such resentment is not conducive to high morale or a cooperative attitude.

The price of a safe washroom, then, is not so much the cost of providing adequate space and buying and installing adequate equipment, but is instead the continuing overhead costs that must be carried year after year after year if such **facilities are not provided.**

Plan Your Washroom

No washroom will be successful in terms of cost, efficiency or maintenance unless it is planned well and carefully in advance. Whether it is a question of installing a new washroom or modernizing an old one, there are several factors that must receive consideration.

Location: The very first problem and in many cases the most difficult is the location of the washroom. Convenience should be the primary consideration, but a location that is convenient for one purpose may not be convenient for another. For example, in many plants location of the washrooms near the building entrances or exits may be most desirable. In others, where the nature of the work may require frequent wash-ups during the day, a location that permits greater accessibility during working hours may be more advantageous. In some cases a single location will meet both of these favored requirements; while in others the better solution may be to have more than one washroom—locker, change-room and wash-up facilities near the exit and additional lavatory facilities near the working area. One recommendation that may limit the latter possibility is that, wherever possible, washrooms should be placed at an outside wall so they will receive the maximum benefit of light and ventilation.

Construction: To assure sanitary and efficient maintenance, washroom walls and floors should be made of a material that is easy to clean and impervious to moisture. Preferably the floor should be sloped to a drain. Careful planning should include provision for good lighting, heating and ventilation. State codes covering these facilities should of course be followed.

Equipment: Consideration should be given to handwash facilities, showers, toilets, urinals and lockers; and they should be installed as specified by state plumbing codes. Toilet partitions of the suspended type permit easier floor maintenance. Provisions should also be made for supplying soap or other detergent, toilet tissue, towels, waste receptacles, protective hand creams where applicable, etc.

Size of Washroom: Basically the size of the washroom is determined by the number of employees and the type of work performed. These two factors will decide the number and size of the various pieces of

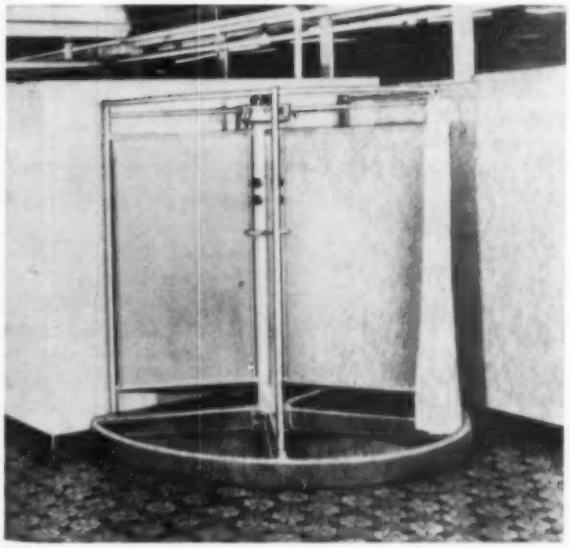


Fig. 5—Another arrangement for convenience and safety is presented by this three-compartment shower, set against wall.

washroom equipment, which in turn will indicate the floor space required.

Hand-Washing Facilities

Basins for washing the hands and face are of three general types, each with advantages for different sizes and kinds of washrooms. The single washbowl is designed for separated flush-mounting along a wall for one person at a time. There are also similarly designed larger units for simultaneous washing by two persons. (See Figure 1) The single or double washbowls are suitable for public buildings or for small washrooms for office personnel or as supplementary units for larger washrooms.

Semi-circular washfountains are also mounted flush against a wall, but their larger size permits several people to wash at the same time, water being supplied as a multiple spray from the central pedestal instead of from single faucets. (See Figure 2) The semi-circular type is suitable for moderate sized factory washrooms or as supplementary units for larger washrooms where size and space requirements make their use advantageous.

Circular washfountains are designed for open areas in the washroom and can accommodate several people simultaneously. (See Figure 3) They are particularly efficient for large industrial washrooms. Both the circular and semi-circular types are available with either manual or foot-treadle control of the water spray. Both also are made of vitreous enamel, stainless steel, and precast stone or marble; and both are available in a wide range of sizes to meet specific design requirements.

The number of people that can be accommodated **simultaneously** by the three types of washing facilities are shown in Table 1.

TABLE 1: Simultaneous Washing

Wash-Up Equipment	No. of Users
54" Circular Washfountain	8–10
36" Circular Washfountain	5–6
54" Semi-Circular Washfountain	5–6
36" Semi-Circular Washfountain	3
Single or Double Washbowls	1–2

It might be noted that the codes of some states specify that 20 inches of washsink rim could be considered the equivalent of one lavatory. In Table 1 the smaller figure under the number of users represents the simultaneous washing recommended in these particular state codes.

In actual practice, however, all employees will not be washing up at exactly the same time. As a general guide for determining the number of washing units needed for the total number of employees, Table 2 indicates a recommended ratio of washing facilities to number of users.

TABLE 2: Total Number of Employees

Wash-Up Equipment	No. of Users
54" Circular Washfountain	50
36" Circular Washfountain	30
54" Semi-Circular Washfountain	30
36" Semi-Circular Washfountain	15
Double Washbowl	10
Single Washbowl	5

In general, the figures in Table 2 are maximum for factory use. Allowances must be made in particularly grimy industries for the longer wash-up time that may be required for each employee. On the other hand, in offices and similar buildings where light-duty washing would be involved, the figures could be substantially increased. In any case, the manufacturers of wash-up equipment are in a position to offer expert advice on this and similar problems.

Showers

In many plants, such as mines, foundries, metal reduction operations, chemical production and nuclear work, where dust and hazardous materials are encountered, employees should have shower facilities. Such facilities must, of necessity, be liberal in terms of the number of employees, frequently averaging one shower compartment for every five employees.

In locations where washroom area is limited, multiple showers that have a compartmented circular design have space-saving advantages. (See Figure 4) The fully circular shower has five compartments; but two-compartment models for corner installation and three-compartment models for wall installation are also available. (See Figure 5) In particularly grimy industries, a liberal ratio of units for personnel would

(Continued on page 48)

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SAFETY EQUIPMENT FOR HANDLING

. . . Hydrofluoric Acid

The correct usage of personal protective equipment for hydrofluoric acid requires the education of the worker in the proper employment of the equipment available to him. Under conditions which are sufficiently hazardous to require protective equipment, its use should be carefully supervised. In all cases, the type of protective equipment selected should depend upon the existing degree of hazard.

Employees should wear full coverage of clothing at all times. Working bareheaded, with shirt sleeves rolled up, or in an undershirt is exceedingly hazardous. Rubber shoes soled with neoprene or an equally resistant material or rubbers made of same materials, a hat or protective head covering, a full face mask or chemical goggles with plastic lenses, and gauntlet-type gloves made of neoprene, plasticized polyvinyl chloride (0.028 inch plus or minus 0.001 inch thick) or an equally resistant material should be used at all times in operating areas.

Full protective equipment recommended when making repairs, connecting and disconnecting tank cars, discharging containers, etc., consists of an acid hood with plastic window; an acid coat; rubber, neoprene or plasticized polyvinyl chloride overalls; and gauntlet-type gloves made of neoprene, plasticized polyvinyl chloride or an equally resistant material. When leakage is abnormally large and the hydrofluoric acid vapor concentration is high or unknown, positive pressure hose masks, air line masks or self-contained breathing apparatus should be used. The highest degree of protection is afforded by the use of an acid-proof air inflated suit with a mask and safety belt included. The manufacturer of the acid should be consulted regarding suppliers of this type of equipment.

Eye Protection

Chemical Safety Goggles: Positive eye protection equipment such as rubber framed goggles equipped with plastic lenses should be worn whenever there is danger of hydrofluoric acid coming in contact with the eyes. Goggles should be carefully fitted by adjusting the nose piece and head band to insure maximum protection and comfort.

Face Shields: Plastic shields (full length 8-inch minimum) with forehead protection may be worn in addition to chemical safety goggles, where complete face protection is desirable. Chemical safety goggles should always be worn as an added protection where there is danger of material striking the eyes

The above material is from "Chemical Safety Data Sheet for Hydrofluoric Acid (Anhydrous and Aqueous)" published by the Manufacturing Chemists' Association, Inc. The complete data sheet, in addition to giving this information on personal protective equipment and fire fighting, outlines the properties, hazards, engineering control, handling and storage, tank and equipment cleaning and repairs, waste disposal, medical management, and first aid. Copies of the complete data sheet (SD-25) are available at 50¢ each from: Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave., N. W., Washington 9, D. C.

from underneath or from around the sides of the face shield.

Respiratory Protection

Only masks approved by the United States Bureau of Mines should be used and the manufacturer's instructions must be followed carefully.

Air line masks with the proper reducing valve and filter are suitable for use only where conditions will permit safe escape in case of failure of the compressed air supply. Otherwise, self-contained breathing apparatus with stored oxygen or air, which allows greater mobility, should be used.

The latter type requires more highly trained men. In tank work, small manholes may make this apparatus unsuitable because of its bulk, although the style known as self-generating is specially designed for entrance and egress through small openings.

Air or oxygen supplied masks must be equipped with full face pieces made of plastic, and must be worn for protection in circumstances such as:

a. In emergencies when vapor concentration is not definitely known.
b. When the harmful vapor concentration is over 2 per cent by volume or lacks a distinguishable odor.
c. When the oxygen content of the air may be less than 16 per cent by volume.
d. In tank and equipment cleaning and repair work.
e. When the exposure period is to be over 30 minutes' duration.
f. Acid proof air-inflated suits should be worn when acid vapor concentrations are suspected to be sufficiently high to cause skin irritation or injury.

Types of masks generally available include:

1. Air line masks supplied by plant compressed air are suitable for use only where conditions will permit safe escape in case of failure of the compressed air supply. Such masks should be used only in conjunction with a suitable reducing or demand type valve and filter. The compressed air should be checked frequently to make certain that harmful gases from the decomposition of the lubricating oil used in the compressor or from impure air supply are not present.

2. Positive pressure hose masks, supplied by externally lubricated blowers, are usually preferred to the air line type. Since these masks also depend on remote air supply, they should be used only where conditions will permit safe escape in the event of air supply failure. Care must be taken to locate the blower or air source in an area which is free from air contaminants.

3. Self-contained breathing apparatus which permits the wearer to carry a supply of oxygen or air compressed in a cylinder, or the self-generating type which produces oxygen chemically, allows for greater mobility. The length of time a self-contained breathing apparatus provides protection varies according to the amount of air or oxygen supply carried. In tank work where small manholes are encountered, a self-contained breathing apparatus is usually unsuitable because of its bulk.

4. Industrial canister-type gas masks must be fitted with the proper canister for absorbing hydrofluoric acid vapor. They must also be equipped with full face pieces made of plastic. The eye pieces should be made of clear plastic. They will afford protection against concentrations not exceeding 2 per cent by volume when used in accordance with the manufacturer's instructions. The oxygen content of the air must not be less than 16 per cent by volume. The masks should be used for relatively brief exposure periods only, and the same canister should not be relied upon for more than 30 minutes. They may not be suitable for use in an emergency since at that time the actual vapor concentration is unknown and may be very high. The wearer must be warned to leave the contaminated area immediately on detecting the odor of harmful vapor. This is an indication that the mask is not functioning properly or that the vapor concentration is too high.

Head Protection

Safety or "hard" hats will provide protection against accidental liquid leaks, falling tools or other objects. Brimmed felt hats may be substituted for safety hats where the danger of falling objects is remote.

Other Safety Equipment

Ventilation: Since the generally accepted threshold limit of hydrofluoric acid vapor is 3 parts per million by volume in air for an 8-hour working day, strong natural or forced drafted ventilation must be provided in work areas.

Safety Showers: Readily accessible, well marked and frequently inspected rapid-action safety showers must be available in the areas where hydrofluoric acid is handled. They should be capable of supplying large quantities of water under moderately high pressure. Blankets should be located near the safety showers.

Eye Baths: Special eye washing fountains, bubbler drinking fountains or hoses with a gentle flow of tap water of drinking quality should be available for eye irrigation. As in the case of safety showers, they should be readily accessible in the work area and should be inspected frequently.

Recue Equipment: Employees who are requested to enter tanks or enclosed storage spaces should be provided with an acid resistant rescue harness and a life line. These should be kept in proper condition adjacent to the equipment where it would be necessary to use them.

Gloves: Gloves of the type described previously should be tested before use by inflating them under water. Even an extremely small leak in a glove can admit sufficient acid to cause a severe burn. Before use, gloves should be dried thoroughly. After use, gloves should be neutralized, retested and dried thoroughly before reuse.

Accessories: Clean water in ample quantity should be immediately available whenever hydrofluoric acid is handled.

Hose connections should be available for flushing spilled acid.

Soda ash or lime should be available for neutralizing spilled acid.

Adequate facilities for washing protective clothing before removal must be provided.

Acid contaminated tools should be washed and neutralized thoroughly before reuse.

Workmen should be provided with the necessary tools which should be kept in first class condition and restricted in use for repair of hydrofluoric acid equipment only. The borrowing of such tools by untrained and unprotected workmen may cause injuries.

Frequent inspection of premises, equipment, tools and safety appliances is imperative.

CAUTION! Creams or ointments cannot be depended upon to afford protection from exposure to hydrofluoric acid vapors.

The most important factors in the prevention of injury by hydrofluoric acid are:

1. To provide adequate ventilation in operational areas at all times. Under normal conditions, good natural ventilation will probably be sufficient, since hydrofluoric acid vapor dissipates rapidly in air. Otherwise, mechanical ventilation should be provided. The concentration of hydrogen fluoride in the air should be maintained below 3 parts per million.

2. To prevent all contact of vapor or liquid with eyes, skin, gastro-intestinal tract or the respiratory system.

3. To acquire an adequate supply of personal protective equipment and maintain it in perfect condition while it is being used in operations or while it is in a convenient storage location for use in emergencies. Locations of such equipment should be marked clearly.

4. To ascertain that employees who work with hydrofluoric acid are fully cognizant of the hazardous nature of the product and are fully trained in routine operations and for emergencies.

Fire Fighting

Fire Hazard: Anhydrous and aqueous hydrofluoric acids do not burn and do not support combustion.

Explosion Hazard: Although the vapors of hydrogen fluoride are non-flammable, the corrosive effect on metals may cause the generation of significant quantities of hydrogen in tanks or enclosed areas.

Since general fire fighting methods are not applicable to combustion of an explosive nature, measures to prevent an explosion from occurring should be instituted in advance. Recommendations for the abatement of the explosion hazard are as follows:

1. Adequate ventilation should be provided to dissipate hydrogen accumulations in work areas.

2. Lines, tanks and equipment should be purged and kept purged of hydrogen when opened for repairs or inspection.

3. Flames, sparks and unprotected lights and electrical tools and equipment should be kept away from any part of a system used to store, transport or process hydrofluoric acid which is likely to contain hydrogen in the vapors. Only explosion-proof lights and non-spark-producing tools should be used.

4. Provisions should be made to eliminate the possibility of static discharges in areas or near equipment likely to contain explosive mixtures of hydrogen and air.

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What Is Price of Safe Washroom?
(from page 44)

be one corner shower for ten users, one three-compartment wall shower for each 15 workers, or one five-compartment circular shower for every 25 people. Where requirements are less severe, the number of potential users can be increased to 20 for the corner shower, 30 for the wall shower, and 50 for the circular shower.

The amount of hot water required for washing purposes will vary widely according to the type of industry, the number of employees, and the type of plumbing facilities used. Office workers, for example, will require shorter washing periods and less hot water than miners or foundry workers. Manufacturers of washing and showering facilities can supply figures for the amount of water required for each minute of use of their equipment. By multiplying the water required for each unit by the estimated length of time it will be in use during the wash-up period, and then adding these figures together, one can determine the total amount of "temperate" water required.

If one assumes that this "temperate" water is half cold water and half hot, then the amount of hot water will be half of the total figure. However, in estimating the size of a hot water tank for wash-up equipment, the size of the tank should be about double the actual hot water requirements. The additional capacity is necessary to assure plenty of hot water even towards the end of the concentrated wash-up period, for as hot water is used, the remaining water becomes more and more diluted with cold water to replace that which has been consumed.

Personnel Education Vital

Another vital point is that employees may need to be guided in the correct and safe use of washing equipment. It is up to management not only to provide adequate facilities but also, in some cases, to encourage their proper use. Most employees will welcome cheerful, uncrowded washrooms, but some training may be necessary through plant house organs, posters, or safety meetings to show them the value of **thorough** cleansing of the skin. Each company should make a study of the detergents it intends to supply for skin-cleaning and select ones that are safe. Some employees may have a pet cleaner that they insist is the only detergent that will remove dirt and oil. Some of these products are so strong or so abrasive that they remove much more than dirt—they remove skin health too. Discourage the use of these harsh cleaners; encourage the use of your own safe, carefully selected products.

Education of personnel in the care of their skin is necessary not only for the maintenance of industrial health in general, but also, more specifically, for the prevention of dermatitis. The control of industrially induced rashes of the skin will generally require more than just thorough cleansing of the skin, important as that factor is. In many occupations the use of protective creams helps prevent defatting and irritation of the skin by oils, chemicals and solvents by forming a protective barrier against them. However, protective creams or lotions should be carefully chosen and thoroughly tested to make certain that they will give protection against the specific irritant encountered in each occupation. If the protective cream, for example, is itself soluble in petroleum-based solvents, then the cream will offer no protection against solvents.

When suitable types of protective creams or lotions have been selected, employees must still be trained in the correct way to use them. The wrong way is to apply or re-apply the cream when the hands are dirty. This method seals in the dirt and bacteria next to the skin. Make it a general rule that employees must wash before every application of a protective cream. Then when the protective cream or lotion is applied, it acts as a barrier to keep dirt and bacteria from entering the pores of the skin.

One way to encourage the all-important wash-up before application of barrier creams would be a ban on storing the creams in tool boxes or the immediate work area. Instead, have employees keep them in their lockers which are ordinarily located in or near the washrooms. If one type of cream is suitable for all employees within a single department and that department has its own washroom, then dispensers for the creams might be located in the washroom itself, once again to remind workers to wash before using the cream.

The same rule for prewashing should also apply to occupations where protective gloves are worn to prevent injuries and dermatitis. Here again, if the hands are dirty before the gloves are donned, then grime, oil and bacteria are ground into the skin pores.

Cleanliness is important too in the wearing of other types of protective clothing, such as aprons, coats, protective sleeves, etc. Such clothing is often used not only to protect the regular clothing and skin from contact with acids, caustics and other dangerous chemicals, but also to prevent saturation of the clothing by cutting oils which can cause dermatitis. The protective clothing should be put on at the very start of the work period, not after an hour or half-hour of work when the clothing has already been drenched with irritating substances.

Training employees in the importance of personal cleanliness is a step forward in the direction of a healthy, cheerful work force. But first they must have adequate and attractive cleanliness facilities . . . facilities that permit and encourage thorough wash-ups, facilities that are easy to keep sanitary. Give employees safe washrooms. It's one way to clean up those overhead losses.

Pictures by courtesy of Bradley Washfountain Co.

Air Pollution Control

A move to help with the ever-growing problem of air pollution was launched recently by the Committee on Air Pollution Controls of The American Society of Mechanical Engineers.

This effort is to be a review and modernization of

the ASME Model Smoke Ordinance. The present document has been used as the basis for numerous municipal smoke and fly-ash ordinances since it was published in 1949. Now it is to be brought up-to-date in its limitations on smoke and fly-ash as viewed from a practical, engineering viewpoint. Eventually a new model ordinance will be developed which will cover not only smoke and ash but the many new pollutants which are now contaminating the air, as well.

In part, ASME's concern with air pollution has stemmed from its interest in fuels and in combustion processes. The present Model Smoke Ordinance, developed by ASME members, which has met with wide acceptance, stemmed from earlier efforts in the U. S. Bureau of Mines.

"The new model will meet the needs of the modern problem," stated G. V. Williamson, chairman of the ASME Committee on Air Pollution Controls. "It will encourage patience in many communities and possibly prevent them from rushing into unwise legislation not suitable for their specific local problems." Mr. Williamson, a vice-president of Union Electric Company of Missouri, is one of the nation's outstanding authorities on air pollution.

Members of the review committee include representatives from governmental, industrial, research, and trade association groups.

Plastic Pipe Helps Air Pollution Problem

Chemical engineers at Allied Chemical's Solvay Process Division recently solved an air pollution problem at their Syracuse, N. Y. plant with the help of new large diameter polyethylene pipe.

The burning of large quantities of limestone at the plant resulted in emission to the atmosphere of a considerable quantity of dust. Efforts to ovecome this extended over a considerable period of time with only partial success. Recently, however, a modern tubular air filter system was installed and has proved very effective. The new installation has a capacity to handle 25,000 cubic feet of air per minute —equivalent to having 1,000 vacuum cleaners in constant operation in one's home.

Three 18-foot lengths of eight-inch steel pipe were first installed beneath the lime dust filters at about a 45 degree angle. These pipes were designed to carry the fine lime dust discharge from the collecting bins above to a recovery conveyor inside the building. But, it was found that the interior surface of the metal pipe did not lend itself to free flow of the lime dust particles. As a result, the dust bridged in the pipe and filled up the hopper, causing inefficient operation of the collecting system.

Solvay Process engineers substituted eight-inch plastic pipe made from ultra-high molecular weight polyethylene. They found that the mirror-smooth interior of the polyethylene pipe offered no hindrance to the passage of the lime dust. Sizable savings in time and money were realized through continuous, reliable operation.

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Monsanto Chemical Company set a new safety record during 1958 with an accident frequency rate of .67 disabling injuries per million man-hours worked at its 38 locations. The company's best former safety mark of .95 major injuries per million man-hours was established in 1956.

The 1957 all-chemical industry safety record, the latest reported by the National Safety Council, is 3.55 major injuries per million man-hours worked.

Among the Group I plants (those which work more than one million man-hours a year) the Everett, Mass., plant won the President's Trophy for the best safety record during the year. The plant operated the entire year—1,608,312 man-hours—without a major injury.

The President's Trophy for Group II plants (those which work between 200,000 and one million man-hours annually) was won by the Barton Plant at Luling, La., which had no major injuries in 1958 during its 861,964 man-hours of operation.

The Santa Clara, Calif., plant in Group III (plants working less than 2,000,000 man-hours a year) won the President's Trophy in its group by operating free of disabling injuries during the year for a total of 188,-545 man-hours.

The company's Executive Committee Award, which is made to the plant in each group which has the best man-hour record since the last major injury, was won by the El Dorado, Ark., chemical plant in Group I, with its 9,478,207 disabling-injury-free man-hours in the past 5½ years. This plant is the possessor of the company's General Manager's Award for the best plant safety record.

The Group II Executive Committee Award went to the El Dorado, Ark., refinery which has operated 2,902,565 man-hours in 3½ years without a major injury. This plant also won the Annual Improvement Award in its group for the greatest improvement in accident frequency rate for five years.

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H. S. COVER
Dept. 401, South Bend 14, Ind.

"Respirators for Industry Since 1894"

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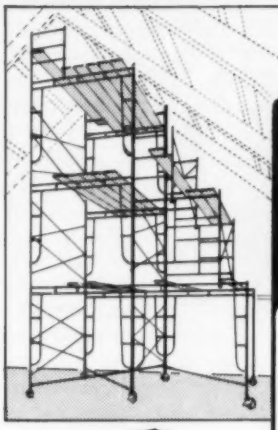

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Men like to wear this
"HATFUL of SAFETY"

ONE SIZE FITS ALL HEAD SIZES
Comfortable, Form fitting

Full Head Protection with Incomparable Comfort

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SAFETY HATS & CAPS

- FIBERGLAS and toughest thermosetting Polyester resin.
- NO METAL PARTS.
- Lightest weight for easy wearing.
- Cool, ventilated suspension.
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- Mildew and fungus-proof.
- Waterproof.
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- Easily sterilized.
- 5-section edge — no distortion.
- No lacing. Sweatband only ever needs replacement.
- Fully tested and approved.

NO METAL PARTS for Real Wearing Comfort

7 COLORS: White, Gray, Red, Yellow, Green, Blue, Brown (molded-in, permanent abrasion-proof).

Write for Bulletin No. 45

THE FIBRE-METAL PRODUCTS COMPANY
CHESTER, PENNSYLVANIA

The WORLD'S LARGEST MANUFACTURER of SUPERIOR PROTECTIVE EQUIPMENT

(For details, use Key # D-25 on card on page 1)

The pipeline department, El Dorado, Ark., won the Group III Executive Committee Award by working 981,064 man-hours with no major injuries for 7 years.

The Monsanto, Tenn., plant was declared the winner of the Group I Annual Improvement Award and the El Dorado, Ark., research laboratory won the Group III award.

• • •

A new safety record has been set by the Owens-Illinois Glass Co. paper mill at Valdosta, Ga. The new record, 2,129,952 man-hours without a disabling accident, covered the period from March 3, 1957, to January 2 of this year.

The 668-day safety marathon ended on that date when a machine tender dropped a metal pole, injuring a finger.

National Safety Council spokesmen said the Valdosta record eclipsed the previous record for the industry, held by the Georgia Kraft Co. of Macon, with 2,124,207 man-hours without disabilities.

Owens-Illinois holds another all-time industry record besides the one for paperboard manufacturing: in 1957 the company's Vineland, N. J., glass plant—where laboratory and scientific glassware is made—chalked up a record for the glass industry with 7,378,622 man-hours without lost time injury.

The Valdosta mill holds three awards for safety—a National Safety Council award given after one million man-hours without disabling injuries, and two Levis Safety Awards, for the first and second million man-hours. The Levis award, one of the top safety awards in the glass industry, was established in 1949 by William E. Levis, chairman of the board of Owens-Illinois at the time, and J. P. Levis, then O-I president and now board chairman.

• • •

Employees of the Naugatuck, Conn. footwear plant of United States Rubber Co., have set a new world's safety record for all manufacturing plants of the rubber industry, the company announced recently.

The old record of 11,400,483 man-hours without a disabling injury—held by U. S. Rubber's Mishawaka, Ind., plant—has now been passed by the 5,000 employees of the footwear and general products plant in Naugatuck. They have operated the plant accident-free since September 27, 1957, according to Wesley M. Graff, safety director for the company.

Employees of the Naugatuck plant, which has a record of shoemaking going back 115 years, expect to pass the 12,000,000 man-hours mark shortly, according to Mr. Graff.

In addition to rubber and plastic footwear, the plant makes fuel cells and sponge rubber products.

"We are particularly proud that the rivalry for the world's safety record is between two of our plants," Mr. Graff said. "The Naugatuck plant first won the record for our company in 1956. Then that

record was passed by our Mishawaka footwear plant. Now the Naugatuck plant has won it back again. It is one of the few times that a plant has been able to win back the honors."

• • •

The Housekeeping Department of The Waldorf-Astoria in New York took first place in the annual Inter-departmental Accident Prevention Contest for 1958. This is the first time this department has won the award and the outstanding feature of this contest is the remarkable record which the Housekeeping staff has established, with over 800,000 hours. Second place was awarded to the Kitchens Department and third place to the Stewards Department.

• • •

The General Electric Company has been presented the American Meteorological Society's annual "Award for Outstanding Services to Meteorology by a Corporation" for work carried out at the Hanford Atomic Products Operation at Richland, Wash.

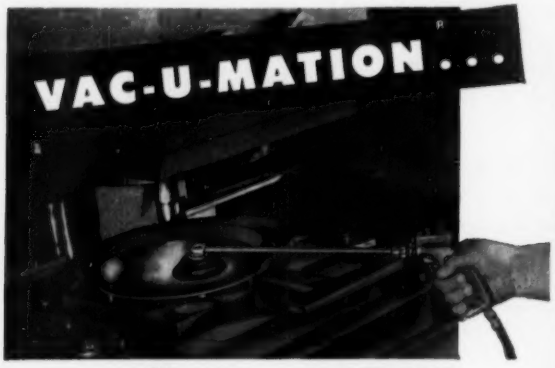
General Electric, which has operated the Hanford plant for the Atomic Energy Commission since 1946, has promoted a continuing program of meteorological research and service at Hanford specifically designed to assist in such operation problems as the safe disposal of small amounts of radioactive gases to the atmosphere.

In the course of this work, the Hanford atmospheric physics operation has developed and used many novel procedures and instruments. These include a precise system for measuring the dispersion of airborne materials, a network of wind measuring instruments which covers the 600-square-mile Hanford reservation and a completely instrumented 400-foot meteorology tower.

• • •

Safety records of the Torrance, Calif., plant of The National Supply Company have brought the plant two national awards. The National Safety Council presented its Award of Merit for the plant's record of 1,113,570 man-hours without a disabling injury. The plant foundry was presented with the Steel Founders' Society Safety Award, based on lowest frequency of accidents. The foundry also received this award in 1951, 1952, 1953, 1954, and 1955.

The plant's tool grinding department has operated 16 years without a disabling or lost-time injury. This record is considered especially good, as tool grinding operations can be quite hazardous. It was made possible by strict adherence to safety rules, together with installation of special equipment, including some devices developed by personnel of the department. The inspection department, over a ten-year period, has compiled a record of more than a million man-hours without a disabling accident. Four employees are selected each year as members of a safety committee, which makes regular inspections of plant operations and recommends any changes necessary from the safety standpoint.



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Write for NEW Catalog!

4583

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4107 Ravenswood Avenue, Chicago 13, Ill.
District Offices Detroit and Cleveland

(For details, use Key # D-26 on card on page 1)

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MODEL NO. 2-A

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Miller EQUIPMENT COMPANY, INC.
FRANKLIN, PA.
in Canada SAFETY SUPPLY CO., TORONTO

(For details, use Key # D-27 on card on page 1)

THE FIRE FRONT

Fire Control Conference

The 6th Annual Industrial Fire Control Conference will be held at Purdue University June 2 through 4, 1959. This three-day course is designed primarily for the industrial fire chief and plant fire specialists.

The conference will feature outstanding industrial fire control authorities, lecturers and moderators. The fine array of speakers will explore the many facets of industrial fire prevention and fire protection. This conference is planned to assist in the development of a more effective fire safety program for industry. The course of instruction will provide the basic techniques and methods of industrial fire fighting and fire prevention. It will consider the essential fire problems that confront both the small and large industrial plants.

This training course in industrial fire control is intended to help administrative and supervisory industrial personnel to deal more efficiently with their fire control problems and to reduce industrial fire loss through training. The program itself is planned to lend assistance to the experienced safety supervisor and also to provide training for new personnel.

For additional information concerning the seminar please address: Professor Shelby Gallien, Seminar Director, Public Safety Institute, Purdue University, West Lafayette, Indiana.

Fire Pumper Tests

An ancient proverb warns us that "Every man should know his donkey." According to a recent bulletin of the National Board of Fire Underwriters, this may well be related to the fire service by saying "Every pump operator should know his pumper," or better still, "Every fire department should know its pumpers."

In order for a fire department to operate effectively, all apparatus, both in service and reserve, must be in the best of condition; periodic tests are an important means of ascertaining this condition. As a pumper is a comparatively complex machine, it is imperative that tests be made at least annually and after major repairs. These may be made a part of the regular training program with the entire company participating; preliminary discussion of pump operation and a thorough analysis of data collected should be scheduled. A fire department with a regular pumper test program profits in two ways; the capability of the pumper is determined and valuable experience in pump operation is gained by the operator.

The procedures to be followed in performing the test, as well as equipment necessary, are outlined in Fire Engine Tests and Fire Stream Tables, a pamphlet published by the National Board of Fire Underwriters, and available, without charge, to fire department chief officers, company officers, and pump operators.

In preparing for the test, the operator should thoroughly acquaint himself with the rated capabilities and operation of the pumper. Pumpers of the same make are not always alike and individual peculiarities should be investigated. The principles of drafting should be understood with full realization of the need for tight connections, proper suction lift and priming. Information on suction hose is available in Special Interest Bulletin No. 255.

The test should be run under draft conditions as this aids in determining the suction capabilities of the pump, which may be overlooked if tested using a hydrant for supply. Reservoirs, lakes, rivers, or a test pit may be used, thus eliminating the necessity of wasting a large volume of water from the domestic supply. A suggested arrangement for a pumper test pit is outlined in Special Interest Bulletin No. 277.

In normal fire fighting operations, little pumping is done at the rated limits of the pump; it is because of this that members often remark as to the noise and speed of the engine during a test and become unduly alarmed. It is at this time that the men can actually observe what might be expected of the apparatus under rigorous conditions; variance in operation from manufacturers' specifications can also be seen. Accuracy of the gauges and other instruments are often taken for granted in daily operation; the test affords a good opportunity to check them with calibrated instruments. Members may also gain experience in the operation of rotary gear and piston pumps which, in many departments, remain only on reserve apparatus.

The failure of a pumper to complete a test satisfactorily should be accepted not as a cause for disappointment, but as an occasion to plan corrective action and reflect the good fortune of locating the defect during a test.

January Losses Soar

Estimated fire losses in the United States during January amounted to $112,983,000, the National Board of Fire Underwriters has reported. This loss represents an increase of 13.1 percent over losses of $99,918,000 reported for January 1958, and an increase of 12.4 percent over losses of $100,523,000 for last December, 1958. These estimated losses include an allowance for uninsured and unreported losses.

Largest 1958 industrial fire loss, a $10,000,000 California oil refinery blaze. It spread over 27 acres.

by **A. C. TRAUTWEIN** *
Senior Vice President
The Fyr-Fyter Co., Dayton, Ohio

Triangle of

Everyone knows by now of the fire triangle—heat, oxygen, and fuel; removal of one element puts out the fire. But how many know of the fire **protection** triangle? Not enough, I think.

Evolution of the fire protection triangle began with a thorough analysis of the problems. We knew that general industrial growth was an important factor; for example, the high cost of real estate virtually put one building on top of another. Plants sprang up in crowded blight areas, adding their accident potential to sections already on the safety borderline.

We knew further that hazards have increased in intensity each year—chemicals, plastics, petroleum and its by-products; from highly flammable liquids to highly charged electronics. With automation leaving so many plant areas unsupervised, it has become more difficult to catch the blaze a'borning.

Then there is the cost-price squeeze, where profit dictates curtailment of non-production expenses, and fire protection becomes merely a necessary evil, and safety supplies meet only the bare minimum. Management's fault? Not entirely; the union contracts have been calling for more money.

*** Mr. Trautwein is one of the nation's foremost authorities on firefighting and protection. He is presently a member of the board of directors of the Fire Equipment Manufacturers' Association (FEMA).**

Yesterday a fire swept through your building. As girders buckled and bent like a straw, and hungry flames consumed each speck of wood and fabric, a factory died. Thirty workmen perished. Surveying the still-warm ruins this morning, insurance investigators estimated the damage at $3,500,000.

How do you feel? You have a physical and mental sickness that may in time be cured, but the scars will always remain. The fantastic feats of heroism, the skillful deployment of firefighters, the tireless, back-breaking work—all taste like sand, and you cannot be consoled.

But even more horrifying than your own loss, as incomprehensive as it may be, is the realization that this same situation took place each and every day of 1958!

Not in one fire, of course; in thousands. The smaller headines perhaps did not do justice to the national average of 5,500 fires a day, the 30 lives lost, and the $3.5 million that daily went up in smoke.

Insurance companies felt the greatest financial burden in 1958, for here the totals became alarmingly clear. In an ever-increasing succession of yearly fire losses, some companies found themselves in a precarious position. They met the challenge in the only possible way—inspections were toughened, and the premiums went up.

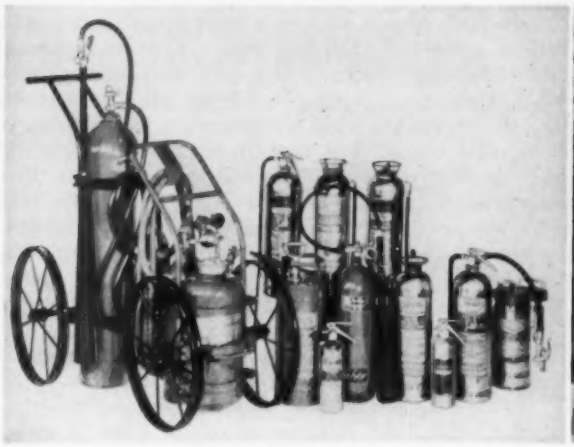
Many safety directors and engineers have seen the result of this defensive weapon, for thousands of dollars of property went uninsured last year, untouchable at any price. Premiums soared, and while executives bellowed "How come?" the answer was being written in smoke and flame across the continent—"Hazards too great, protection too small."

Protection Important, Too

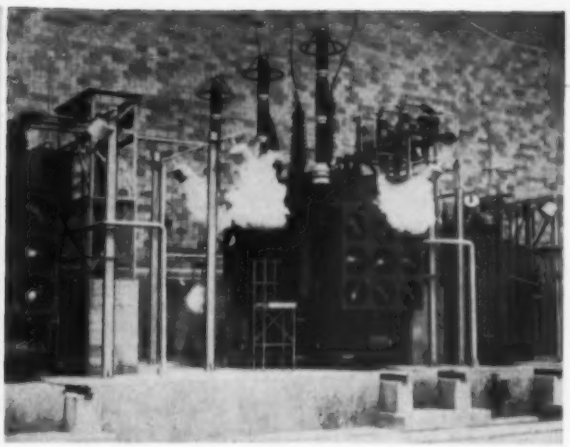
Poor training and maintenance procedures are followed much too often. Prevention is a wonderful thing, but not when it is promoted to the exclusion of **protection.** The multi-plant safety campaign and a thousand "No Smoking" signs are useless if fire breaks out when sprinklers are inoperative, the alarm system is disconnected, the fire doors are left open, or employees don't know how to use an extinguisher or find the exits.

Lastly, there's the constant spectre of arson. Few repellants work on the fire-bug, and the recent recession proved again that intentionally set fires increase during periods of economic decline.

Like a jigsaw puzzle, each unit falls in place, and soon the entire picture is clear. The fire **protection**



A family of portable extinguishers offering a big choice of size and type designed to meet the various plant hazards.



These transformers have the protection of a low-pressure carbon dioxide system, excellent for electrical equipment.

Fire Protection

triangle must consist of the following three elements:

1. Provide Adequate Protection . . . enough to do a good job and matched to the hazard. At the core should be an automatic system (either a water sprinkler system or another type of fixed equipment), supplemented by proper, plainly marked extinguishers in strategic locations, hose stations, and a foolproof alarm arrangement, preferably based on automatic principles.

2. Stress Employee Training. Make sure every employee knows what to do in an emergency . . . how to turn in an alarm . . . how to use the common types of hand extinguishers . . . where flammables are located . . . why fire doors should be left shut . . . how to get out when an exit is blocked, plus all the other things a good safety director should know. And your plant fire brigade, the professional staff, should work as

(Above Right) Several hours spent with a fire protection specialist can pay dividends in an emergency.

Picture taken soon after start of test of oil firm's fire protection equipment, a foam head system.

smoothly as the proverbial well-oiled machine. The time spent in regular training and drills will pay enormous dividends should fire strike. Consider your chances of being involved in one of tomorrow's 5,500 fires. How will your crew perform?

3. Promote Regular Maintenance. Frequent inspection of systems and appliances should be encouraged as strongly as regular maintenance of motors around the plant. This work should be done by a professional, a man who knows exactly what to do and when to do it. Hydrostatic testing of extinguishers, for example, should follow the NFPA Code; in some areas this has never been done, and with perilous results.

Note the similarity of these three points with the fire triangle. Take one away, and the fire defense collapses. Almost every blaze in history that got out of hand can be ascribed to one critical absence.

How to Get Fire Protection

Where does the responsibility lie for a complete fire protection program? In theory, at least, it's the 100 per cent job of the safety director or engineer. In reality, the answer boils down to 50 per cent safety director and 50 per cent management, for without an adequate budget the director's hands are tied. Not only must he overlook one element of the fire protection triangle; he may be forced to ignore all three.

There is nothing in this world more frustrating than being given a pressing responsibility with no authority to back it up. But let's face it—nobody, not even the government, gets an unlimited budget. The problem is one of spreading limited funds across an entire safety program, with fire protection just one phase.

The solution seems to lie in a unified presentation to management. When the time comes for the annual survey, the plant's fire protection supplier should be called in. A good supplier is more than a salesman; he is a trained and devoted partner in fire defense. His counsel may give the director a keener sense of priority on certain items, may point out a forgotten sales idea, may note the gap in an otherwise perfect campaign. This unified approach can help to win an adequate appropriation.

Don't forget the other services available from your supplier, either. The straight answers and the department-by-department survey are standard practice for every supplier, but he can also be most helpful in setting up firefighting schools, providing the labor and equipment at little or no charge, and in establishing a workable inspection system based on NFPA and local codes.

He can also keep you informed of new developments in the field and in the laboratory. He may explain, for example, some of these recent additions:

New fog-type deflectors that permit some Class C (electrical) applications for water sprinklers;

The successful combination of two or more systems, such as foam and water, in areas where both may be required;

A new type of dry chemical powder that will not cake or absorb moisture in storage.

He may further explain the advantage of an outside siamese connection, knowing that pressure drops in a sprinkler system when a great number of heads have been activated and that a fire department pumper can connect with the siamese to restore pressure.

How Much Does Fire Protection Cost?

We spoke earlier about high premiums and more recently about inadequate budgets. The link between them is obvious. Without proper protection the cost of insurance will skyrocket; conversely, rates will descend as protection increases. The total expenditure on insurance and protection will, generally speaking, run about the same for two companies of comparable size, although one has steeper premiums and the other has a more comprehensive protection system.

However, the fixed system—be it water, foam, carbon dioxide, or dry chemical—is a great leveling factor. When amortized over several years, the savings on insurance will soon pay for the entire installation. This can be done in as little as five years.

All fires start small, and herein lies the value of a fixed system. Small fires cause little damage, but with 83 percent of all industrial fires occurring during non-working hours you must rely on the fixed system—the workman that never goes home— to keep the little blaze from becoming a conflagration. The built-in flow alarm that notifies the nearest fire station makes doubly sure that the fire will be contained.

Perhaps the greatest testimonial to the sprinkler system, and the reason for lower premiums, is that **96 percent of all fires in sprinklered buildings have been controlled by operating sprinkler heads, in most cases with five or less heads open!**

Fire Losses Rising

In conclusion, it should be noted that fire losses in 1958 were the highest in the nation's history, topping the record set in 1957, and the next-previous record in 1956. Things are getting worse, not better, and that major fire may not be as far away from you as you'd like to think.

The other results of a major fire are as tangible as the initial dollar loss . . . cancellation of orders, great hardship to the community, the possible loss of valued executives and craftsmen. Less than 30 percent of the plants struck by fire in 1956 will still be in business at the end of 1959.

If these figures mean as much to you as they mean to me, you should have no trouble remembering the three legs of the fire protection triangle—**adequate protection, employee training, and regular maintenance.**

If all three do not now exist in your plant, there's no time like the present to start.

Pictures and chart by courtesy of The Fyr-Fyter Co.

According to the Fire Equipment Manufacturers' Association, Inc., improperly maintained fire extinguishers may mean ineffective fire protection in case of emergency. Ineffective fire protection means danger, high dollar losses, and possible injury and death.

FIRE HAZARD CHECK CHART

TYPE	VAPORIZING LIQUID		FOAM	LOADED STREAM	PUMP TANK	SODA ACID	WATER		CARBON DIOXIDE	DRY CHEMICAL		G-1 POWDER
	HAND PUMP	STORED PRESSURE					STORED PRESSURE	CARTRIDGE OPERATED		CARTRIDGE OPERATED	STORED PRESSURE	
RECHARGE*	AFTER USE		YEARLY	AFTER USE	AFTER USE	YEARLY	AFTER USE		AFTER USE	AFTER USE		
OPERATING METHOD	*Hand Pump*	*Pressure Valve*	*Inversion*	*Squeeze Grip*	*Hand Pump*	*Inversion*	*Squeeze Grip*	*Invert, Bump Top*	*Squeeze Grip*	*Invert, Bump Top, Squeeze Grip*	*Squeeze Grip*	*Pour onto fire*
STREAM RANGE	*25 to 30 feet*	*30 to 40 feet*	*30 to 40 feet*	*40 to 45 feet*	*45 feet*	*45 to 55 feet*	*40 to 50 feet*		*3 to 8 feet acc. to size*	*10 to 25 feet according to size*		*None*
CAPACITY OR SIZE	*1, 1½ quarts*	*1, 1½, 2, 4 quarts*	*2½ gallons—40 gallons*	*2½ gallons*	*2½ gallons—5 gallons*	*2½ gallons—40 gallons*	*2½ gallons*		*2½, 5, 10, 15, 20, 50, 75 and 100 pounds*	*4, 5, 10, 20, 30, 75 and 150 pounds*		*7, 40 and 350 pounds*
QUANTITY OF EXTINGUISHING AGENT	*Interdeterminable vapor volume*		*20 to 25 gallons 350 to 400 gallons*	*2½ gallons*	*2½ gallons—5 gallons*	*2½ gallons—40 gallons*	*2½ gallons*		*Approximately 9 cu. ft. per lb. liquefied carbon dioxide*	*4, 5, 10, 20, 30, 75 and 150 pounds powdered dry chemical*		*7, 40 and 350 pounds*
EXTINGUISHING EFFECT	*Blanketing and cooling*		*Blanketing and cooling*	*Cooling and drenching*	*Cooling and drenching*	*Cooling and drenching*	*Cooling and drenching*		*Blanketing (excludes oxygen)*	*Blanketing (excludes oxygen)*		*Depletes oxygen, halts combustion*
PROTECTION FROM FREEZING NEEDED?	*No, OK to 48° below zero F.*		*Yes, heated cabinet or warm location*	*None (Operates at 40° below zero F.)*	*Water-Type, Yes, Anti-Freeze, No*	*Yes, heated cabinet or warm location*	*Water-Type, Yes Anti-Freeze, No*		*None (Operates at 40° below zero F.)*	*None (Operates at 40° below zero F.)*		*None required*
CLASS A FIRES WOOD, PAPER, TEXTILES, ETC.	*Yes. Incipient fires especially indoors*		*Yes*	*Yes*	*Yes, Excellent*	*Yes, Excellent*	*Yes, Excellent*		*No, but will control small fires*	*No, but will control small fires*		*Especially compounded to control magnesium chip fires*
CLASS B FIRES FLAMMABLE LIQUIDS	*Yes, Excellent*		*Yes, Excellent*	*Yes*	*No*	*No*	*No*		*Yes, Excellent*	*Yes, Excellent*		
CLASS C FIRES ELECTRICAL	*Yes, Excellent*		*No*	*No*	*No*	*No*	*No*		*Yes, Excellent*	*Yes, Excellent*		

** For most satisfactory results the fire extinguisher owner should use only the charge supplied by the manufacturer of his extinguisher.*

Nature's Unguided Missile

Government records prove that beginning sometime in March the United States is being bombarded by a power that will make atomic bombs look like fire crackers. This bombardment will bring death and destruction. This bombardment is nothing new; it has been going on since the beginning of the world. This dreadful power is lightning.

Man has always feared lightning and endeavored to protect himself from its disastrous effects. In the light of present day knowledge, some of his early efforts appear ridiculous and sometimes humorous.

It wasn't until the latter part of the 18th Century that man devised a practical and effective protection –the lightning rod.

During the 19th Century, lightning rods and lightning protective measures were the subject of many scientific treatises, which verified the fact that for protection from lightning, there was nothing so effective as the lightning rod. This is still true today to such an extent that the modern lightning rod system is, for practical purposes, complete protection.

For many people this statement carries little interest, except perhaps as a curiosity. Lightning does its greatest damage in suburban and rural areas, and it is here that people are highly conscious of the need for lightning rod protection. Lightning protection in the cities is important too. Churchs, smokestacks and tall buildings are all susceptible to lightning, and even city homes suffer damage during a lightning storm.

The reasons people install lightning rods are: fear for the loss of life and property; to reduce insurance premiums; and as a preventive measure against loss of income caused by lightning shutting down industrial or business operations.

The average man works all his life; and he has many motivating forces. One is the desire for security. He invests in securities and property. To the home owner, farmer, or small business man, this investment is usually the biggest one he will make in his lifetime. Theoretically he has "all his eggs in one basket." He sees his neighbor lose the work of a lifetime in a single, terrible instant when the tremendous energy in a lightning bolt flashes through his house—his barn—his place of business.

At any time during all the years ahead the threat of lightning loss is always present. Authorities estimate that we experience 30 to 50 lightning strokes per square mile per year, and a building only 50 feet in height has a probability of being struck once every four years. The cost of the lightning rod system only averages about 2 percent of the building valuation.

In some cases, insurance reductions repay a portion of the cost. Business men in responsible insurance positions offer reductions for approved lightning rod systems.

The United Lightning Protection Association, Box #9, Onondaga, New York, an informational, nonprofit organization, publishes this information: "Insurance companies in the United States between 1936 and 1946 paid a yearly average of fifty-four million dollars in claims for all fires caused by Lightning."

SAFETY FACTS for Industry
MOST SAFETY DIRECTORS INSIST ON
Safe-Hi LADDER SHOES!
BECAUSE Safe-Hi LADDER SHOES ARE U/L APPROVED FOR ALL SURFACES! THIS EQUIPMENT ENABLES WORKERS TO PERFORM LADDER JOBS WITH SAFETY AND EFFICIENCY—NO NEED OF "HELPER" TO HOLD BASE OF LADDER!
A 1949 REPORT OF THE N.Y. WORKMEN'S COMPENSATION BD. SUMMARIZING 21,000 FALL ACCIDENTS, DISCLOSED SLIPPING LADDERS AS THE PRINCIPAL CAUSE OF LADDER ACCIDENTS.
DIAGRAM SHOWING ACTUAL HOLDING POWER OF Safe-Hi LADDER SHOES UNDER CONDITIONS INDICATED FROM AUTHENTIC MEASURED TESTS.
47°
35°
29°
14° SAFETY ANGLE
SMOOTH IRON-SOAPY
SMOOTH CONCRETE-COVERED WITH ALEMITE
WAXED HARDWOOD-DRY
LINOLEUM-DRY
LINOLEUM-WET
SMOOTH IRON-DRY
TERRAZZO-DRY, SMOOTH CONCRETE-WET
WAXED HARD WOOD-WET
TERRAZZO-WET
SELF SHARPENING SPIKE FOR ICE SNOW, GRAVEL ETC.
ALSO AVAILABLE:—NON-SPARK LADDER SHOES FOR REFINERIES, GRAIN ELEVATORS, MUNITIONS PLANTS AND ALL INDUSTRIES WHERE SPARKS ARE A HAZARD.
OTHER Safe-Hi LADDER ATTACHMENTS
POLE GRIP HOLDS TOP OF LADDER ON ANY POLE, PIPE OR CORNER.
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DENVER

(For details, use Key # D-28 on card on page 1)

Safety Service Axes Accidents
(from page 14)

ported during the first year and a half of the program. In 9 percent they found a hazardous condition and no unsafe act. In the remaining 43 percent they found only an unsafe act. **In other words, there was an unsafe act in 91 percent of the cases and a hazardous condition in 57 percent.**

Improper lifting—lifting with bent back or in an awkward position—was found to be first among the causes of accidents. It was a factor in 13 percent of the 3,864 injuries studied—about a third of which occurred in foundries.

Unsafe use of equipment was nearly as prevalent a cause as improper lifting. This includes use of tools not adapted to the specific operation involved. It may stem from haste or from insufficient knowledge of the job. This group also includes injuries that result when a worker uses his hands instead of using a hand tool to feed a machine or to adjust or clean it.

Failure to use safety equipment, the third largest group of cases, involved safety goggles, safety shoes, gloves, leggings, etc. Here the worker failed to wear the personal protective equipment provided by management, or management failed to provide needed protective equipment. Equally frequent was the using of some **unsafe process or procedure.** The taking of an unsafe position or posture (other than improper lifting and inattention to footing) ranked fifth, contributing to 10 percent of the accidents.

Other leading causes of accidents are **defective materials, tools, and equipment; improperly placed, stored, or piled materials; workers gripping something insecurely or taking a wrong hold; inattention to footing; lack of safety devices, such as a guard on a machine; working on moving or dangerous equipment; operating at an unsafe speed; and inadequate or congested work space.** (See Table 1)

Future Goals

The investigation of causes of individual injuries, made by the Labor Department's consultants, not only tells us where prevention is needed most but will ultimately inform us, also, against which accident-causes our drives are most effective.

In the meantime the consultants' reports have given us, by charting the decline in frequency rates, a basis for deciding that we will be justified in extending the program to additional extra-hazardous industries.

Industrial safety is primarily industry's job. The Labor Department's role is to support and reinforce industry, first by requiring minimum safeguards, through laws and codes, but also by assistance, especially to small firms that may lack facilities and knowhow.

In this role, New York State's Labor Department has made progress—but it cannot be complacent when the total annual cost of work injuries is over $700 million. It will continue to look on safety as a top responsibility.

Pictures and charts by courtesy of New York State Department of Labor.

The 54-in. Bradley circular Washfountains serve 8 to 10 persons. Also furnished in semi-circular models and in vitreous enamel and stainless steel. One of the four Bradley Column Showers installed in this plant is shown at right.

Now is the time to augment washing facilities

Wall-type semi-circular models are made in the same bowl diameters—54-in. and 36-in.

And DUO-WASHFOUNTAINS

These smaller 2-person fixtures have foot-control (no faucets to bother with) and self-flushing bowl. For white collar washrooms, cafeterias, laboratories and locations throughout plant, warehouse, commercial, school, and municipal buildings.

• You may have needed more Washfountains for some time—so why not augment and modernize facilities in present washrooms now, and locate others in various convenient places to eliminate long journeys to present washrooms.

Many plants have done this, using the full-circle 36-in. and 54-in. Washfountains, and the wall-type models.

Make a survey now while the pressure is off. To help in selection of correct models, send for our Catalog 5601 . . . It's yours for the asking. . . . . BRADLEY WASHFOUNTAIN CO., 2229 W. Michigan St., Milwaukee 1, Wis.

Write for Catalog 5601

BRADLEY washfountains

Distributed Through Plumbing Wholesalers

(For details, use Key # D-29 on card on page 1)

REVOLUTIONARY RESPIRATOR PROTECTS AGAINST HEAT

A new "Thermalair" respirator which provides protection against excessive heat has been announced by American Optical Co. Developed for workers in areas where intense heat endangers health (such as kilns and ovens where temperatures range from 150 to 300 degrees F), the new device can also be used for emergency entrances in furnaces and boilers for repair work.

Field tests prove the "Thermalair" to be a practical safety device, particularly where workers are limited to a few minutes or seconds of activity because of unbearable heat. With the new respirator, the same conditions were tolerable for extended periods. It can be used with heat-reflective clothing in temperatures up to 300 F. A special aluminized AO hood will accommodate the respirator.

The respirator cartridge contains a metal screen heat exchanger which absorbs heat when the user inhales. Incoming air is cooled to about body temperature. As user exhales, the stored air is forced out and the cycle repeats. The device is inexpensive, can be washed and sterilized, weighs 6 ounces, has low breathing resistance. Because of its heat exchange principle, the respirator can also be used to provide greater comfort to people subjected to abnormally low temperatures.

For details, use **Key # RP-1** on inquiry card on page 1.

PLASTIC RESPIRATOR

The first plastic respirator for protection against dusts, pneumoconiosis-producing mists and chromic acid mists, with Bureau of Mines Approval 2175, is announced by Welsh Manufacturing Company.

Weighing only 2.1 ounces, approximately half that of other leading respirators, the Welsh "Air-Raider" introduces a new respirator design providing greater functioning filter area which is said to increase filter life. Unique valve construction and location reduce inhalation and exhalation resistance. Modified polyethylene ma-

Respiratory Protection Developments

terial is nontoxic, resilient and durable. Frame cushion-fits wide variety of face shapes and head sizes. Double headbands have four-point suspension providing a positive seal with minimum pressure. Filter is a performance proven, treated-wool electrostatic type. Eight parts are easily assembled without clips or fasteners.

For details, use **Key # RP-2** on inquiry card on page 1.

NEW CANISTER GIVES WARNING WHEN SPENT

Visual warning that a gas mask canister is no longer effective against carbon monoxide is provided by a new device recently adopted by the Gas Masks and Hose Masks Group of the Industrial Safety Equipment Association, Inc. The device, a window indicator, shows at a glance the condition of the canister. The left half of the window contains a dark blue indicating color, while the right half contains a light blue reference color. When the two colors match, the service life of the canister for protection against carbon monoxide is spent.

In conjunction with this adoption, Mine Safety Appliances Company announced the new "All-Service Gas Mask" with the new "Window-Cator Canister" for visual indication of canister life. Gas masks equipped with the new canisters have U. S. Bureau of Mines approval, Schedule 14F.

Accompanying the new warning device is another MSA development. A new external check valve

prevents exhaled air from entering the canister, and provides an effective seal against entry of moisture into the top of the canister. It guards against moisture penetration when facepiece and tube are being cleaned. The external check valve closes automatically after inhalation regardless of the position of the canister. Guarding the new MSA canister against moisture penetration during storage is an improved plastic coated tape which can be removed from the canister when the mask is put into service. This new tape can be replaced for storage.

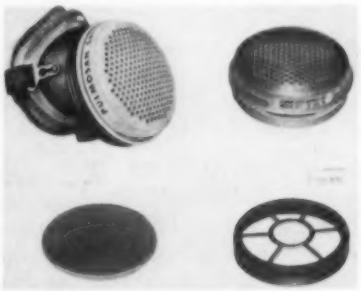
The new warning device works automatically, eliminating the possibility of human error. Any use is accurately recorded, as a direct result of the chemical change taking place inside the canister through exposure of canister contents to inhaled atmosphere. Even if moisture should enter the unit while it is not in use, the new "Window-Cator Canister" will indicate this fact to a potential mask user. Consequently, the person who has to depend on the mask can know the condition of the canister when he puts the mask on. Conversion kits for attaching the new improvements to older type masks are available.

For details, use **Key # RP-3** on inquiry card on page 1.

RESPIRATOR FEATURES INTERCHANGEABLE FILTERS

One respirator is said to stop all dusts, radioactive dusts, mists, light smoke, organic vapors, paint spray, ammonia fumes, acid gases and insecticides with a single filter retainer cup. The C-200 series, introduced by the Pulmosan Safety Equipment Corp., carries the approval of both the U. S. Bureau of Mines and the U. S. Dept. of Agriculture.

Respirator users can now stock one basic unit with a single retainer cup along with interchangeable filters designed to meet various respiratory hazards, states the man-



ufacturer. The respirator is lightweight and features an aluminum face-fit body, a molded rubber face cushion, an intake valve, exhalation valve and a double elastic headband. Filters for various conditions thread into the retainer cup. A molded plastic clip-cap is supplied with cartridge and pre-filter combination units.

The series offers protection for workers in mines, crop dusting, paint spraying and in the chemical industry, etc. Respirators should be worn where there is adequate ventilation and where there is no deficiency of oxygen.

For details, use **Key # RP-4** on inquiry card on page 1.

LIGHTWEIGHT OXYGEN MASK

A lightweight, air-oxygen quick entry mask, called the "Short Snorter" is one of the latest additions to the line of resuscitation and breathing protection equipment manufactured by Globe Industries, Inc. The mask gives respiratory protection in a toxic or oxygen-deficient atmosphere, for

a period of ten to fifteen minutes. For use when entering a toxic atmosphere to inspect, rescue or perform other duties, the mask can be put into operation in seconds. Weighing only fifteen pounds, it is designed to give maximum freedom of movement to the wearer. A full face mask is provided with a new demand valve, which is said to give all the air or oxygen the wearer needs, with a minimum breathing effort.

For details, use **Key # RP-5** on inquiry card on page 1.

PORTABLE OXYGEN INDICATOR

An M-S-A Portable Oxygen Indicator for checking oxygen deficiency or conditions in an atmosphere that might increase fire and explosion hazards has been developed by Mine Safety Appliances Company. Many applications may be found in the chemical, petrochemical, and petroleum industries.

The new instrument measures the percent of oxygen throughout a range of 0 to 25% oxygen content by volume with an accuracy of plus or minus ½%. The meter scale follows a square root function and has a 5% graduation near the center.

Oxygen is measured by a detector cell in which a gas or atmosphere to be analyzed is circulated through a hollow carbon electrode. The carbon electrode and a zinc electrode are supported in a small Lucite container filled with a special electrolyte, called "Oxylite."

Oxygen diffuses through the porous carbon and combines with hydrogen ions which have been brought to the electrode by electric current produced by the detector cell. The hydrogen ions polarize the cell, i.e., produce an opposing electromotive force. This, counteracted by the oxygen which acts to depolarize the cell, charges the terminal voltage and meter reading according to the amount of oxygen present in a gas or atmosphere. A small dry cell supplies the very little current required for adjustment and standardization.

The entire instrument is enclosed in a case 6¾ x 4⅛ x 5¾ inches and weighs only 5¾ lb. complete with sampling line. Leather waist and neck straps are provided with the instruments. Sampling lines and probes of different length and type are available.

For details, use **Key # RP-6** on inquiry card on page 1.

VARIABLE DENSITY RESPIRATOR FILTER

Development of a new variable density respirator filter has been announced by American Optical Co. The new filter has Bureau of Mines approvals for respiratory protection against all dusts not significantly more toxic than lead, pneumoconiosis-producing and nuisance mists and chromic acid mist.

The "Red Devil" filter is composed of two sections—a red prefilter and the filter body. The built-in prefilter is composed of interlocked viscose fibers to trap larger sized airborne particles, agglomerates of smaller particles and a reasonable amount of microscopic particles. Its relatively open structure results in a large storage capacity for retained particles and no increase in breathing resistance. The grey filter body is composed of microfine viscose and vinyon fibers and ultrafine asbestos fibers. The viscose and vinyon fibers form a constant latticework to hold the extremely fine asbestos fibers. These asbestos fibers vary in density from front to back. This variable density feature prevents a rapid increase in breathing resistance and the plugging of the filter.

The "Red Devil" is made to fit standard AO single and twin cartridge respirators. It is not affected by climatic conditions and can be stored indefinitely without deteriorating. The filter is practically weightless (300 filters weigh 1 oz.). Breathing resistance is extremely low.

For details, use **Key # RP-7** on inquiry card on page 1.

CANISTER WITH BUILT-IN CO INDICATOR

For the added safety it can give to firemen and industrial workers using canister masks, Acme Protection Equipment Company offers its "SEE-O Indicator Window Canister" which tells at a glance when it will give protection against carbon monoxide. The manufacturer has designed a special window with an indicating color between two reference colors—making it easy to read. The color indicator is activated by the presence of moisture in the area of the chemical which oxidizes the CO. Since moisture destroys the CO oxidizing ability of chemical, the color change indicates the protective life of the canister in carbon monoxide atmospheres. The window is recessed into the canister body, offering protection to the glass window and greater contact of the chemicals with the indicating paper.

For details, use **Key # RP-8** on inquiry card on page 1.

unpaved areas, or to accumulate it into piles where it can be shoveled into a dump truck.

The second type of specialty sweeper worth mentioning, if for no other reason than to call to your attention the progress made by manufacturers in this field of endeavor, is called a Vacuum Sweeper. (See Figure 6) This sweeper is designed specifically for airport apron and runway areas and has developed as a result of the introduction of jet airplanes into our Army and civilian air terminals. If any foreign matter, regardless of size, is sucked into the jet engine, the results can cause extensive and expensive repairs. Therefore, it is mandatory that facilities used by jet planes be kept clean and free of all substances that can cause failure of these engines. This particular unit is 30½ feet long, has a cleaning swath of 8 feet, can clean at a speed of approximately 25 mph., has a hopper capacity of approximately 80 cubic feet, picks up debris and soil through a vacuum system, and is estimated to cover 1 million square feet per hour.

The third type of specialty sweeper or vacuum unit available is a bit revolutionary in scope. Visualize, if you can, a paved or grass area covered with miscellaneous trash, including beer cans, paper cups and plates, cigarette butts, and leaves. This machine, which resembles an overgrown carpet sweeper, but motorized and having an attached trash bag, not only sucks up the miscellaneous litter and trash, but it also shreds the trash, thereby making it possible to pack more litter into the attached trash bag. The capacity of the trash bag is 3 to 4 cubic feet and the quality of performance is satisfactory. However, it is important to mention that this machine will not pick up rocks, pebbles, soda bottles, or the like.

Why Power Sweepers?

Having reviewed many of the areas where sweeping operations are required and mentioned many of the sweeper types available, let us consider some of the more important reasons why we would purchase a power sweeper and some of the points to consider before reaching a decision.

One of the major considerations to be examined in the purchase of any equipment is **the need.** What types of areas are under consideration? What is the soil condition? Can it be handled by means other than power sweeping and, **most** important, will the sweeper be used often enough to justify the expenditure? Most certainly we would not want to purchase a power sweeper if the areas are not large enough to permit the unit to maneuver, nor if the soil accumulation is so light that the sweeper is only used one day of the week.

The quality of the sweeping job to be performed should also be considered. Do you want a rough sweeping or a fine sweeping operation? Is the type of soil easily handled by the sweeping unit? Do you want a "wet" or "dry" sweeping method? Will the sweeper spread dust and possibly have a detrimental effect on manufacturing processes or finished products in the area being swept? Answers to these questions depend on the nature of the operation in the areas.

Another major consideration of the prospective purchaser of power sweeping equipment is the possible man-hour and dollar savings that will result from such a purchase. These considerations are based on questions such as: Will the employment of a power sweeper do the job in less time, the same time or more time than we are now expending? Will this sweeper save me enough labor to actually move personnel off my payroll, or will it save enough man-hours to be available for other necessary and important assignments? What are my present costs for sweeping these areas, and what cost will be anticipated for cleaning these areas with a power sweeper?

Before making any decisions relative to sweeping costs, remember to consider **all** elements involved in the operation. For manual sweeping operations costs to be considered are:

Man hours required.

Cost of floor brushes and replacements.

Cost of sweeping compound if used.

For power sweeping, cost items to be considered are:

Man hours required.

Cost of replacing brushes and flaps.

Oil and gas consumption.

Depreciation of the unit.

One last point to be considered is the maintenance service required by the sweeping unit, and the service available for the unit by the manufacturers. These machines are continually working in an environment of dust and soil. Therefore, it is not unreasonable to assume that we will be faced with some troublesome mechanical difficulties. Be sure that the sweeper is easy to service and that the manufacturer of the unit will provide fast and expert service if and when the occasion arises.

While discussing the maintenance service requirements of these units it is advisable to discuss briefly the types of fuel and power available for sweeping units because this can have a direct relationship to the maintenance requirements. A gasoline powered sweeper is satisfactory for most sweeper application. It is convenient, easy to use, and most modern plants have ample ventilation for exhaust fumes. Another type of fuel available for these units is the Liquid Petroleum gas. This type of fuel is usually recommended for sweepers used in confined manufacturing areas, bakeries, food plants and similar areas. This gas reduces exhaust fumes and odors. Also, its near perfect combustion leaves no carbon residue, helps prolong engine life and reduce engine maintenance costs. A third type, battery power, eliminates all noise and odor problems, and is ideal for use in hospitals and other locations where noise is objectionable.

Accompanying this article is a list of items to be checked in considering the employment of power sweepers. This list does not contain all items that should be examined but will serve as a guide and can be added to and adapted to fit your own individual cleaning problem.

From an address presented at the November 1958 meeting of The Buildings, Institutions and Industrial Divisions of The Institute of Sanitation Management. Pictures by courtesy of The Port of New York Authority.

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

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Master Superior Court, New Jersey
American Bar Ass'n, New Jersey Bar Ass'n,
Chairman, Committee on Workmen's
Compensation, New Jersey Bar Association
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Past Commander, American Legion, Post 10,
. . . . . Newark, N. J.

CAUSAL CONNECTION—Heart Condition—Attendance at Meeting

A decision of the board disallowing an employee's claim for benefits was upheld where the court found that the employee had sustained a heart attack while attending a business meeting as a representative of his employer. The illness was not accidental because no eventful happening could be demonstrated to have caused it, and its only connection with the employment was a gradual physical deterioration over a period of time. The medical evidence on the issue of causal relation was conflicting, and in view of this conflict the board could find that the heart attack did not arise out of and was not within the course of claimant's employment. Affirmed.

Parker v. Sesac, Inc.; New York Supreme Court, Appellate Division, Third Judicial Department. No. 1034. November 10, 1958.

LUNCH HOUR INJURY HELD COMPENSABLE—"Arising out of Employment"

A workmen's compensation claim for injuries sustained while playing softball on the petitioner's lunch hour, while on the employer's premises, was dismissed by the Department of Labor as not arising out of and during the course of employment. On Appeal the Judgment of Dismissal was reversed by the Supreme Court which held that since the softball games were played on the employer's premises, the equipment was supplied by the employer and the employer not only permitted but also encouraged this activity, the injury may fairly and justly be grouped with those occurrences which may be said to have had some work connection.

Tocci vs. Tessler & Weiss, Inc.; New Jersey Supreme Court. No. A-54. January 20, 1959.

HEART ATTACK—CAUSAL CONNECTION—Humane Instincts Doctrine—Voluntary Aid Undertaken

The decedent had died from a heart attack and an action at law was brought by deceased's representative alleging that the employer negligently failed to furnish medical aid despite the demands of the "humane instincts doctrine" and despite a voluntary undertaking to furnish such aid. The court held that, assuming there is no connection between the work and the heart attack, the question of whether the representative's claim is nevertheless within the compensation act should be postponed. The court continued the appeal pending trial of the compensation case upon the thesis of work-connection between the employment and the heart attack. The court further stated that if work-connection should be found with respect to the heart attack, the remaining issues will be academic because if the heart attack is a compensable event, the representative may not mount an additional claim at law upon the theory that but for a negligent failure to give medical aid the employee would have lived. However, if the heart attack is held not to be compensable, the remaining issues would require consideration.

Dudley vs. Victor Lynn Lines, Inc.; New Jersey Supreme Court. No. A-8. January 20, 1959.

INJURY PRIOR TO WORKING HOURS—Personal Errand—Causal Connection

An elevator operator was not entitled to receive compensation for an injury sustained prior to working hours. The employee came to his employer's premises about 7:30 A.M., changed into his uniform and left at once on a personal errand. On the way back a sign from a building fell and injured him. **The Board had held the injury had occurred in the course of his employment.** He would answer any emergency calls which came in prior to the 8:00 A.M., starting time, but was not required to do so by his employer. In this instance, there was no actual employer control over the employee's activities prior to working hours since he was free to go where he chose. The Supreme Court held that the accident did not occur in the course of employment or arise out of it. Reversed.

Solomon vs. David Kay Corporation; New York Supreme Court, Appellate Division, Third Judicial Department. No. 1041. December 30, 1958.

inside the trade

Dr. Frederick Willson, 90, retired industrialist and civic leader, died February 15 in Community General Hospital, Reading, Pa. Born in Reading, he was a son of Thomas A. Willson, one of the founders of T. A. Willson & Co., forerunner of Willson Products, Inc., manufacturers of safety equipment.

He became president and general manager of the company after its incorporation in 1910. Later the firm's name was changed to Willson Products, Inc. until its sale in 1955 to Ray-O-Vac Company.

The first president of the Optical Manufacturers Association of Providence, R. I., Dr. Willson was honored by the British Society of Safety Engineers for outstanding achievements in the field of personal safety.

Robert C. Stuart has been promoted to assistant general manager of the *Hearing Aid Division* of *ZENITH RADIO CORPORATION*, it was announced by *E. M. Kinney*, Zenith vice president and general manager of the division. Stuart had been general sales manager for the company's Hearing Aid Division since November of 1957. In his new position, Stuart will coordinate production, sales, advertising, service, and administration.

Robert A. Kubicek, Field Sales Manager for the *Hearing Aid Division* has been promoted to the position of Special Assistant to *E. M. Kinney*.

Wm. B. Ilko, in addition to his duties as Sales Manager of the *American Chain Division, AMERICAN CHAIN & CABLE CO., INC.*, has been appointed to the position of Sales Manager, *Wright Hoist Division*, succeeding S. J. Woodworth, according to an announcement by Henry Ervin, Vice President and Director of Sales.

At the same time, Mr. Ilko has announced the appointment of *T. J. Winter* to the newly created post of Field Sales Manager for the Wright Hoist Division.

Frederick S. Buckley has been named Manager of Marketing of the *Industrial & Marine Division, WALTER KIDDE & COMPANY, INC.*

Mr. Buckley joined Kidde in 1946 and served as District Manager of the company's West Coast operation with headquarters at Los Angeles, and served during World War II as a Lt. Commander in the Navy, a specialist in damage control.

Appointed as the new District Manager of the West Coast operations is *Walter G. Beaman*. Mr. Beaman joined Kidde in 1950 and served as an Industrial Distributor working out of Kidde's Los Angeles office at 4845 West Exposition Boulevard.

Promotion of *Edward Unger* to Los Angeles branch sales manager, reflective products division, has been announced by *MINNESOTA MINING & MFG. CO.*

Unger, who joined 3M in 1950 as a reflective products salesman, is responsible in his new post for sales of 3M marking films and all reflective products sales to commercial markets in the southern section of the Western states.

Timothy J. O'Shea has been appointed sales manager of the *STEPHENSON CORPORATION*, Red Bank, New Jersey. Mr. O'Shea, formerly assistant sales manager, will be responsible for the sales of resuscitation equipment and the drunkometers and breathalyzers, used by law enforcement agencies.

A sales and management graduate of N.Y.U., with three years of technical studies at Stevens Institute of Technology, Mr. O'Shea brings to his new position 10 years of previous experience in sales managerial capacities.

NUCLEAR-CHICAGO CORPORATION, a prominent firm in the radioactivity measuring instruments, radiochemicals and accessories industry, announces the construction of a home office and manufacturing plant in Des Plaines, Illinois, 20 miles northwest of Chicago. The new headquarters is a modern, 55,000 square foot, one-story, brick building designed for expansion and constructed on a nine acre plant site.

The main building is 250 by 200 feet. Half of it will be occupied by the manufacturing and film badge divisions. The other half contains main offices, conference room, library, technical division and laboratories. Move to the new plant is expected shortly after mid-year. Address will be: 333 E. Howard St. at Nuclear Drive, Des Plaines, Ill.

Completion of a broad reorganization program involving creation of six new divisions is announced by the new man-

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(Use Key # D-31 on Inquiry Card on page 1)

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(Use Key # D-32 on Inquiry Card on page 1)

agement of *WARD LAFRANCE TRUCK CORP., INC.*, Elmira, N. Y. The new divisions will permit merchandising separately the various products which Ward LaFrance has manufactured for many years. The divisions include: Fire Apparatus Division; Motor Truck Division; Utility Equipment Division; Government Sales Division; Custom Body Division, and a newly-created Cargo Container Division.

Ormond M. Hessler, Manager, Industrial Footwear and Glove Sales for *B. F. GOODRICH Footwear and Flooring Company,* announced recently the appointment of three new sales representatives.

James W. Straubinger, formerly a Goodrich Footwear salesman, Dallas Branch, is appointed Southern Sales Representative, Industrial Footwear and Gloves. He joined the B. F. Goodrich sales staff in 1951 after serving four years in the U. S. Navy.

Irving Matz, formerly a Hood Footwear salesman, St. Louis Branch, is appointed North Central Sales Representative, Industrial Footwear & Gloves. He has had 33 years experience in the rubber industry and has been a Hood Footwear salesman since 1950.

John M. McGuire, formerly a Hood Footwear salesman, Philadelphia Branch, is appointed Mid-Atlantic Sales Representative, Industrial Footwear and Gloves, replacing *John M. Burns* who has been transferred to the Philadelphia Branch as a Hood Footwear salesman. Mr. McGuire joined the Hood staff at Philadelphia in 1940, and from 1941 to 1945 served in the Navy.

February 19, 1959, marked the fortieth anniversary of the incorporation of *HUNTINGTON LABORATORIES.* Located on the northeastern edge of Huntington, Indiana, the firm is now the second largest manufacturer of its type in the United States, producing chemical maintenance, sanitation and production supplies.

Huntington's president, *J. L. "JAKE" Brenn,* moved into what used to be a brewery in 1919. His original operating tools were some wooden beer vats, other old brewery equipment, four employees and practically no business.

Now Jake Brenn supervises the activities of nearly 200 highly trained personnel who develop specialized products that go to every state in the Union and across the seas. The firm has a branch office and plant in Philadelphia, Pennsylvania; operates in Canada; has a sales force in Hawaii; and carries on an active export business in Central and South America and other parts of the world.

GENERAL RADIO COMPANY, manufacturer of noise analysis equipment, has announced the opening of a repair, reconditioning and certification facility for its instruments in the Metropolitan New York area. The new service facility is located at Broad Ave. at Linden, Ridgefield, N. J.

A new warehouse building at 144 Thalia Street, New Orleans 13, now houses a complete factory stock of Wire Rope manufactured by the *MACWHYTE WIRE ROPE COMPANY* of Kenosha, Wisconsin. Increased demands for their Whyte Strand Wire Rope prompted opening of the new warehouse by the company to better serve distributors selling to the industrial, construction, and oil well drilling trade.

Safety Appointments

Gerald L. Maatman has been named director of the Fire Protection and Safety Engineering department at Illinois Institute of Technology, Dr. John T. Rettaliata, president of IIT, announced recently. He succeeds John J. Ahern, who is now with General Motors in Detroit, Michigan.

Maatman graduated from Illinois Tech in 1951. After two years in the U. S. Coast Guard where he served as fire protection officer for southern California, he joined the Illinois Inspection Bureau where he has been for the past six years. He has also lectured extensively at various fire protection conventions and has taught at the Illinois Fire College. He was recently named fire protection consultant for Hazel Crest, Illinois, where he lives with his wife and 3-year-old son.

Alfred B. Auerhaan of Brooklyn, N. Y., formerly safety engineer for Todd Shipyards, Eastern Division, has been appointed director of safety for the New Haven Railroad, it is announced by John J. Gaherin, vice-president in charge of personnel and labor relations.

At the same time *Sindo E. Cavalieri* of Milford, Conn., who has been safety agent, was promoted to the post of assistant director of safety.

A native of Boston, Auerhaan has been engaged in safety work for about 20 years, ever since his graduation from New York University. He served as safety engineer for several other companies before going to Todd Shipyards in 1955.

Auerhaan is an active member of the National Safety Council; of the American Society of Safety Engineers, and an executive board member of the Metropolitan Chapter; a member of the Veterans of Safety; the Greater New York Safety Council; and the first aid and safety committee of the American Red Cross, Brooklyn Chapter. He has had 33 years' service with the Boy Scouts of America and is a member of the Greater New York Council of that organization as well as District chairman for the Atlantic District, Brooklyn Council.

BOL' TABS®

BOWL CLEANER

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(Use Key # D-33 on Inquiry Card on page 1)

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To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.

what's new for APRIL

NEW SAFETY GLASSES

(Use Key # 801 on Inquiry Card on page 1)

BAUSCH & LOMB OPTICAL CO. announces C-20 Safety Glasses for industrial applications. The C-20 has been designed to combine long-wearing comfort and functional good looks with the protection of safety glasses. It is a combination plastic and metal frame, with top rims and temples in dark brown, contrasting with white metal eyewires and engraved bridge. A strong front of nickel-silver completely encircles the lenses, assuring maximum frontal protection. The plastic and metal has been designed so that there is nothing to break, shrink or warp. The frame features a sturdy bridge construction united to the eyewires by wide solder joints.

The C-20 has high quality lenses, heat-treated for impact protection. "Bal-Safe" lenses can withstand a blow which is up to 14 times heavier than that required by Federal specification, the company reports. Modern lens shape provides a wide field of vision, and will accommodate any individual prescription, single vision or bifocal. Where glare protection is necessary, models are available with green lenses in two different shades. The frame features a choice of spatula or cable temples. Side shields can be easily attached to provide full side protection. They are available as separate units for on-the-job interchangeability or as part of the complete frame.

GERMICIDAL FLOOR CLEANER

(Use Key # 802 on Inquiry Card on page 1)

SAID TO BE 3 to 6 times more powerful than ordinary germicides, new "Elimstaph #2" cleans, disinfects, sanitizes and deodorizes in a single operation. It destroys Golden Staph and most other known pathogens, spores and fungi by penetrating the wall of the germ cell and disintegrating the entire organism from within.

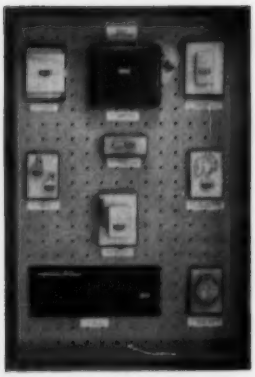
Residual in its action, "Elimstaph#2" has a phenol coefficient of 33 (certified by U.S. Testing Co.). The only product of its kind to earn the York Quality Research Seal, it is colorless, odorless and exceptionally low in toxicity. Besides floors, it is recommended for use on walls, furniture, equipment, lavatories, shower stalls, utility closets, garbage cans, etc. Rapidly gaining favor in leading hospitals and industrial plants, the cleaner is economical to apply. One ounce makes a gallon of mopping solution. A sample for testing purposes may be obtained from the manufacturer, Walter G. Legge Company, Inc.

STATIC-FREE WORK CLOTHES

(Use Key # 803 on Inquiry Card on page 1)

A NEW LINE of lightweight chemical resistant, anti-static work clothes of 100 percent Dynel has been introduced by Worklon, Inc., an affiliate of Mercantile Uniforms, Inc. Especially designed for electroplating, chemical, petroleum refining and other industries where job conditions might result in rapid deterioration of ordinary clothes, the new garments are said to provide maximum wearing comfort, plus rugged serviceability and long laundry life. The Worklon line, which includes shirts, trousers, coveralls and full length "lab" coats in medium gray color, is cut from a six-ounce twill fabric called "Dynadure" woven by Industratex Division of Chrysler Textiles, Inc.

Significant on-the-job value of the clothes is due to the inherent characteristics of "Dynel," acrylic fiber which is completely inert to attack from acids, alkalies and other harsh chemicals and will stand up under hundreds of washings, without color degradation since it is solution-dyed. Also, the fabric will not flash burn, an important safety factor in some industries. An added safety and comfort factor of the clothes is the durable anti-static finish with which the fabric is treated. The finish is guaranteed to last throughout the life of the garments, the company reports.



SAFETY PROGRAM PACKAGE

(Use Key # 804 on Inquiry Card on page 1)

A SAFETY PROGRAM package is designed to help safety personnel effect a continuous promotional campaign to motivate safer work practices, offers a monthly change in incentive awards, etc. Package includes a safety die to emboss company insignias and emblems, various awards and promotional gimmicks such as ball point pens and buttons, each with an imprinted safety message, and a display board to show merchandise.

Four different plans are illustrated in the promotion. Each plan consists of: a safety die; a "Launch a Safety Program" package to include "Pocket Savers," "Spin-O-Grams," "I Will Work Safely Buttons," a ball point pen; a selection of other fine award items, all with a safety emblem applied; a permanent pegboard display to enable companies to display merchandise that each employee is working towards, providing a constant incentive. Available from Award Incentives, Inc.

NEW INFRA-RED VIEWER

(Use Key # 805 on Inquiry Card on page 1)

THE ABILITY to see in the dark, which has been, and still is, a great military asset, also has unique advantages in many industrial applications, including plant security; biological, medical and chemical research; photographic inspection; observation of hot body radiation and other applications where visible light is either impractical or cannot be tolerated. Seeing in the dark is made possible with a new, high power, portable infra-red viewer, called "Nite-Eye," which is manufactured by Q.O.S. Corporation. The viewer is a lightweight, hand carried telescope which converts infra-red light into visible light by means of an electronic image-converter tube, a system of telescopic lenses and a miniature high voltage power supply.

SAFE INDUSTRIAL HANDCLEANER

(Use Key # 828 on Inquiry Card on page 1)

THREE new features of an improved skin cleanser provide better control of dermatitis. Made by West Chemical Products, Inc., this non-depleting lanolized handcleaner, called "Lan-O-Kleen PLUS," is an improvement on West's original "Lan-O-Kleen," a widely used handcleaner that pioneered the use of lanolin in the early 1940's. It is described as offering a softer scrubbing action that doesn't roughen skin; a gentler sudsing action that doesn't wash away natural skin oils; a new fresh fragrance; and a rich lanolin content that soothes and softens hands.

The new cleanser is manufactured by an exclusive West process that impregnates ingredients into finely ground corn meal particles. In washing, these particles are said to have a gentle sponge-like action that soaks up potential skin irritants without excessive rubbing. Free samples for evaluation are available.

POISON IVY CREAM

(Use Key # 806 on Inquiry Card on page 1)

"KERODEX," a new barrier cream produced by Ayerst Laboratories, is effective against poison ivy, oak and sumac. Its use has reduced greatly the incidence of these infections among a large number of railroad track workers, section hands and other outdoor workers. Railroad lines in the United States and Canada have found that a small investment in "Kerodex" saves many dollars in lost time and absenteeism.

Greaseless and stainless, "Kerodex" applied to skin forms an invisible shield against acids, alkalis, dyes, inks and hundreds of other skin irritants found in modern industry. The cream is as tough and flexible as the skin itself, and can be used with complete safety on face, hands or body, the company states. After use it can be wiped or washed off.

NEW CONCRETE FLOOR TREATMENT

(Use Key # 807 on Inquiry Card on page 1)

THE MONROE Co., Inc. has announced the introduction of its new floor treatment, called "Pilo Con." The compound is said to seal, harden and dust-proof concrete floors and protect and extend the life of the concrete.

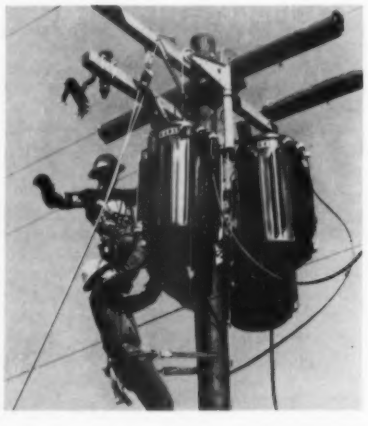
Formulated for use in factories and warehouses, the compound helps to make floors much easier to clean and to keep equipment rolling much easier. The compound may be applied with either a lamb's wool applicator or a mop. It sets up dust-free in one hour and dries to the touch in three hours. The new compound, "Plio Con," is said to blend in perfectly allowing for quick, easy touch-ups.

MANUAL HOIST FOR LINEMEN

(Use Key # 808 on Inquiry Card on page 1)

AN IMPROVED version of the "MoPeCo" transformer hoist has been announced by the manufacturer, Morrison-Pelsue Company. This manual hoist has a redesigned base clamp with increased support which greatly increases the safety factor for workmen high on utility poles, the manufacturer states. The two-piece unit is raised by a hand line and assembled at the top of the pole. The base clamps to the pole by means of pole chains and a fast-operating clamp. The swivel head, which seats onto the tubular base assembly, has been shortened to permit easier assembly on the pole. The cable or manila rope from the truck winch passes up through the base assembly and over the sheaves, utilizing the power from the truck to raise the transformers. The rear sheave has been dropped two inches to prevent slippage or bind hazard.

The 42-pound unit is inexpensive, versatile and portable. Two workmen on the line can install three transformers in 30 minutes with the truck operator working the winch line.

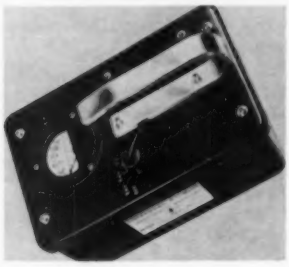


X-RAY DETECTOR FOR ELECTRONIC DEVICES

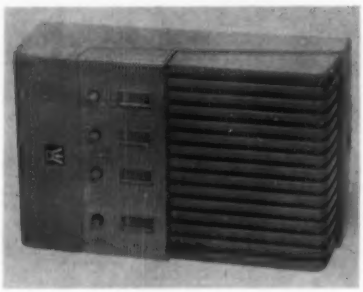
(Use Key # 809 on Inquiry Card on page 1)

THE ADDITIONAL radiation hazard in the form of secondary X-rays caused by high voltage equipment has become quite a problem. A portable detector designed to monitor these X-rays in and around high power radar transmitters—but equally effective around all high voltage apparatus including newer type T.V. cameras, high voltage welding equipment, high potential cathode ray tubes, magnetrons, klystrons, etc.—has been developed by the Universal Atomics Division of Universal Transistor Products Corp.

The X-Ray detector, Model 607-X, operates accurately over the 100 KEV to 600



KEV energy level. It is designed with specifically constructed shielding so that the unit can make accurate measurements in the presence of high intensity RF pulses or other types of electromagnetic, magnetic, and electrical fields. The 607-X is similar in appearance and operation to a standard geiger counter, operates from 1½-volt flashlight batteries, and is designed to meet military shock and vibration tests. The unit weighs only 8 lbs.



NEW ALARM-ANNUNCIATOR

(Use Key # 810 on Inquiry Card on page 1)

THE DEVELOPMENT of a new component for automatic fire detection systems has been announced by Fire Detective, Inc. Dubbed the Model "A-L5," the single unit combines a loud, vibratory alarm with an annunciator, enabling the system to provide both auditory and visual fire detection.

In institutions such as schools, factories, mines, nursing homes and hospitals, where knowledge of the exact location of the fire is vital to effecting the evacuation of personnel, the visible bulls-eye lamps incorporated into the new unit, are said to be a vast improvement over former annunciators.

SAFETY BENCH & DRIP CANS

(Use Key # 811 on Inquiry Card on page 1)

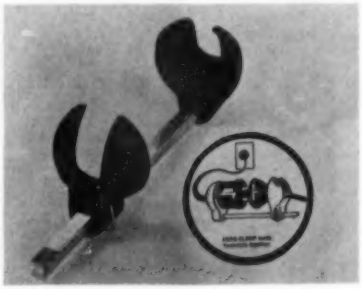
THE PROBLEM of cleaning small metal parts in gasoline is solved by a new safety bench can introduced by Eagle Manufacturing Co. To minimize waste and speed the operation of cleaning small parts or swabbing larger ones, Eagle has designed special features into the new can approved by Factory Mutual for industrial use. It has a spring-actuated dasher which is perforated and flush with the top of the can, to reduce evaporation losses and minimize explosive vapors. The dasher, coupled with baffles, protects contents of the can from fire. The entire can is constructed of heavy-gauge coated sheet steel, with red enamel exterior finish.

Also just announced is a new drip can, to be used to reduce fire hazards where a faucet may drip or where a slow leak is likely. Each of the two new Eagle cans comes packed one only to the carton. The safety bench cans are available in one- and two-quart and two-gallon sizes. The drip can comes in two-quart size.

NEW SAFETY CORD CLAMP

(Use Key # 812 on Inquiry Card on page 1)

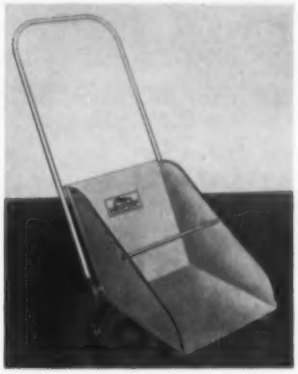
THE NEW "CORD-CLAMP," manufactured by M-M-A, Inc., prevents extension plugs and receptacles from pulling apart. The cord clamp, made of steel and aluminum, acts as a safety device to prevent power failure and electric sparks in hazardous areas when cords are unplugged. The unit is easy to apply and use. It snaps on and off in a second. The "Cord-Clamp" comes packaged 12 to a carton, along with an attractive display easel which is designed to display 6 units. The unit is said to fit any size cord or terminal.



NEW SWEEPING CART

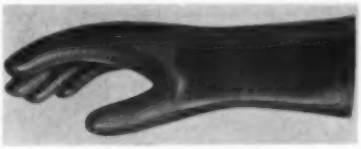
(Use Key # 813 on Inquiry Card on page 1)

HANDLING DEVICES Company announces "Sweepcart," a new tool for dirt or trash pick-up and removal which eliminates shoveling and simplifies floor cleaning. This new unit is extremely practical and efficient; push it right up to (or into) the pile of dirt or trash to be removed. Quickly and easily sweep the material right into the dirt pan and wheel to disposal area. The cart eliminates the need



of dragging or pushing barrels, shovels or containers around.

"Sweepcart" is counterbalanced and has free-rolling solid rubber wheels. A new feature is that the lightweight dirt pan detaches from the handle and wheels for simplified dumping. Its all-welded steel construction will take hard use. The handle is one-piece tubular steel. Dirt pan is 19" wide; edges are rubber protected to prevent damaging other equipment. Finished in safety color baked enamel.



NEW COATED GLOVE

(Use Key # 814 on Inquiry Card on page 1)

AN EXTREMELY flexible liquid-proof glove, developed to protect military personnel in the handling of rocket fuels, now is available for industrial applications where dexterity is important. The "Vylaca" glove, vinyl coated over a soft knit liner, is designed to fit the hand in its natural, relaxed position, rather than the conventional method of fitting the hand held flat. Thus, when the hand is extended, the liner stretches to a snug fit which provides a keen sense of touch.

Wear tests show that the "Vylaca" far outwears unsupported rubber gloves, has excellent non-slip wet grip, is liquid-proof and solvent resistant, and is especially resistant to mineral acids. The lining is sanitized, a treatment that effectively inhibits odor-causing bacteria. From the Edmont Manufacturing Company.

ELECTRIC INCINERATING COMMODE

(Use Key # 815 on Inquiry Card on page 1)

A SOLUTION to the problem of human waste disposal at construction and temporary sites is available in the electric Incinerating Commodes manufactured by Incinomode, Inc. These units can be installed anywhere (mobile shops, shovel cabs, portable shelters, temporary housing, locomotives, etc.) without the normal connections to utilities such as water and sewers. These units require no water, only 3 square feet of floor space, a vent to fresh air and a source of electrical power. Through the application of heat the waste is reduced to an ash comparable to cigarette ash quickly and quietly. The unit will operate from any of the voltages commercially available. Power requirements range from 2000 watts upward.

AIR JET VACUUM CLEANERS

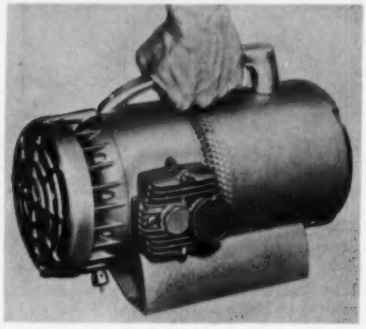
(Use Key # 816 on Inquiry Card on page 1)

THE SPENCER Turbine Company has announced the availability of "Air Jet" vacuum cleaners. These new portable units, already being utilized by aircraft manufacturers, have no moving parts, no motors and no electrical wiring. Hence there can be no sparking and the cleaners can be operated in hazardous areas. Power to operate the units is obtained by connecting them to compressed air lines existing in the plant. Units are available with a 2-inch or 3-inch air jet. The 2-inch size has an air supply requirement of 20 CFM at 80 psi. The 3-inch jet uses 40 CFM at 80 psi.

AIR SAMPLING VACUUM PUMP

(Use Key # 817 on Inquiry Card on page 1)

THE GELMAN Instrument Company has introduced a line of air sampling vacuum pumps. The new unit, designed as a powerful, continuous vacuum source in plant safety and air pollution studies, is activated by graphite ringed pistons which give volumetric flow over a wide range of vacuum conditions, the company states.



Models are available with air capacities of 2CFM and 4CFM. Bearings are grease packed and sealed. No oil is needed in operation. Valves are optically polished to assure a leakproof fit. Piston ring joints are self-sealing. The pump is housed in a weatherproof shelter for radiological fallout studies, if desired.

SHOCK-ABSORBING HAMMER

(Use Key # 818 on Inquiry Card on page 1)

A NEW TYPE hammer, which absorbs much of the impact shock, is being introduced by Ramset Fastening System, Olin Mathieson Chemical Corporation. The new hammer eliminates much of the fatigue of hammer-in work, the company said. Of radically new design, the head of the hammer is suspended from the handle by ejastic shocks within the head housing. These shocks, or "O-Rings," are made of a resilient material having energy absorbing qualities. It is by suspending the hammer head that impact shock is minimized.

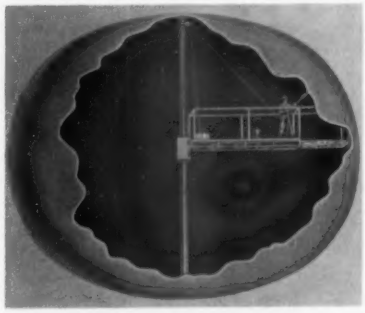
The new hammer, called "Shure-Drive," was designed for use with "Shure-Set," a tool which converts the energy supplied by a hammer stroke into fastening power enabling a worker to manually fasten such hard-to-penetrate materials as thin steel and concrete. However, the new hammer will also be sold separately.

BATTERY POWERED EMERGENCY LIGHTING

(Use Key # 819 on Inquiry Card on page 1)

A NEW EMERGENCY lighting unit, the Model 59-W, powered by a 6 volt, 30 A. H. capacity battery with visible hydrometer balls has been introduced by the Electric Cord Company. The complete unit contains a voltmeter, test switch, pilot light and safety fuse all mounted on the side of the case.

Two sealed-beam flood-type heads, fully adjustable, are mounted on top of the case and are designed to supply up to four hours of continuous emergency lighting. The charging system is automatic and requires no manually operated timer or switches for correct battery maintenance. It provides automatic battery-powered light for evacuation of personnel and illumination of hazardous operations if the regular power fails.



SCAFFOLD FOR INSIDE SPHERES

(Use Key # 820 on Inquiry Card on page 1)

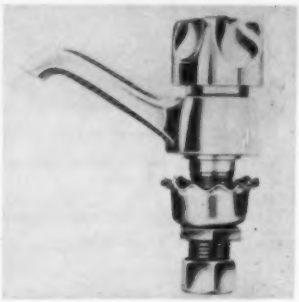
ATLAS INDUSTRIAL Corp. announces the introduction of a new scaffold especially designed for working inside spheres. The requirement for this type of scaffold is the installation of a uniform diameter length of tubing from top to bottom of the sphere and a revolving ring to which a snatch block is attached. The balance of the equipment is entirely removable from within the tank and can be raised or lowered either by hand, electrically or by air.

The longitudinal sections of the work platform are so designed as to be telescopic in nature as it approaches the top or bottom of the sphere. The entire assembly can be rotated around its axis and accessability is attained to every portion of the entire sphere.

LEAKPROOF FAUCET

(Use Key # 821 on Inquiry Card on page 1)

A BRAND NEW faucet, based on an entirely new patented principle, has been introduced by the Kel-Win Manufacturing Company. The new faucet operates by a cam and straight-lift piston action. Unlike the spring loaded faucet that snaps shut when released, the Kel-Win faucet remains open at any desired water flow leaving both hands free. But, the final closing and seating is automatic. The person using the new faucet starts the closing operation by hand but, before a half turn is accomplished manually, two things happen: The vertical piston and stem are in "free" position, and a spring takes over to close or seat the valve; and, at the same time,



water pressure pushing up against the bottom of the valve in the direction of closing applies pressure helping to seat the valve and assure a positive and permanent seal.

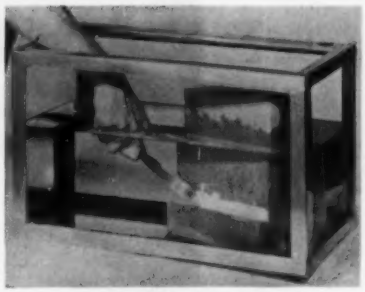
There is no way possible for manual pressure to be applied on washers or seat as with the manual faucet. Thus, all of the maintenance caused by excessive manual squeezing is eliminated. The unit also features "feather-touch" control. A minimum of manual pressure and less than half a turn is required to open or close.

Tests by a leading U. S. laboratory, revealed these results: Average saving in hot water was 24%. Because of self seating, leaking is stopped and it becomes impossible for faucets to be left partly open because of carelessness. Fuel for heating water represents a big saving. And, it also saves on porcelain fixture wear that is stained or pitted by continual dripping.

NYLON SAFETY STRAPS

(Use Key # 822 on Inquiry Card on page 1)

A NEW SAFETY strap constructed of 100%, 1¾" yellow neoprene nylon with a 2 ply red safety center has just been announced by Miller Equipment Co., Inc. Single tongue buckle construction—with holes seared to stop scratching—has buckle hole strength test of 2100 lbs. straight snap to snap pull. Accelerated abrasion tests prove this new type of construction has a longer life.



EPOXY PASTE CURES UNDER WATER

(Use Key # 823 on Inquiry Card on page 1)

FURANE PLASTICS announces the availability of a new epoxy paste which is capable of curing firm and hard in underwater locations. This cure and good adhesion can be obtained in completely wet locations. The epoxy paste used in the application is identified as "Epocast" 546 which, in combination with Hardener 9514, will cure in wet locations such as sewer pipes, underground installations, wet concrete, and in marine areas where considerable quantities of moisture prevail.

After the paste has been combined with its hardener, it may be trowelled or squeegeed into position. Hardening takes place in several hours and unlike usual epoxy formulations it will get quite hard overnight under moist conditions, and will develop good adhesion to clay pipes, to concrete products, to stone, to metals, and to other miscellaneous products.

NON-SLIP STAIR PLATFORMS

(Use Key # 824 on Inquiry Card on page 1)

BUSTIN STEEL Products, Inc. announces the introduction of the new "Heavy Duty Service Stairs." It is suitable for use in the maintaining and servicing of machinery in all types of plants. The stairs are made from Bustin "Firm-Grip," the all-directional, non-slip, comfortable grating surface. It is said to retain its positive grip through slippery and viscous substances. The platform is movable and has a safe load capacity of 300 lbs. It comes in all sizes and heights to any specifications.

RADIOISOTOPE TRAINING AIDS

(Use Key # 825 on Inquiry Card on page 1)

A GROUP of inexpensive, complete laboratories for use by students for training in analytical and industrial process applications of radioactive isotopes has been announced by Nuclear-Chicago Corporation. The laboratories incorporate all the necessary equipment for measuring and recording radioactive disintegrations, and are furnished with experiment manuals which lead the student through the physics of radiation detection and recording .

A typical laboratory unit includes a shielded Geiger-Mueller counter and sample changer, radioactivity absorbers for plotting energies of different radiations and discriminating against undesired radioactivity, a scaler which incorporates its own high voltage supply and decimal readout, a timer, and a set of radioactive sample preparation equipment, radioactivity standards, and radiation sources.

POWERED GAS LEAK DETECTOR

(Use Key # 826 on Inquiry Card on page 1)

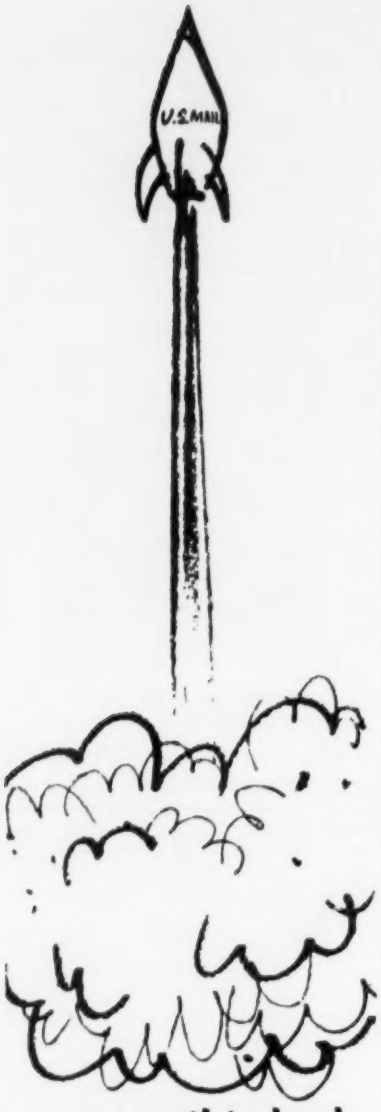
THE NEW "GAS HOUND" speeds the job of probing for gas main leaks. Utilities using the new self-propelled prober claim that one man can check 28 blocks of mains and services in 8 hours. Two-man teams using hand probes now average only 8 blocks in the same time.

Push-button controls let the operator complete a leak test in 15 seconds. Short turning radius and reverse gear make it easy to test close to curbs and buildings, claims the manufacturer, the Detecto Co., Inc.

NEW PRESSURE TREADLE

(Use Key # 827 on Inquiry Card on page 1)

NU-WAY SIGNAL Service has developed a new electric contact pressure treadle which eliminates the annoyance of accidental operation of the circuit. A steel rod molded into the rubber contactor strip makes it necessary for more than 200 lbs. pressure to be applied to the treadle before the device will operate. An additional improvement to the treadle has been the elimination of a junction box at the treadle end—an innovation that simplifies and lowers the cost of the installation, the company states.



zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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Haws Drinking Faucet Co.	30	Pacific Advertising Staff, Oakland
Hild Floor Machine Co.	47	MacFarland-Aveyard & Co., Chicago
Hood Rubber Co.	23	Henry A. Loudon Advertising, Inc., Boston
Horizon Industries	66	Co-operative Sales System, Minneapolis
Hynson, Westcott & Dunning	Back Cover	
Littell Machine Co., F. J.	52	Vernon S. Weiler, Chicago
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Masury-Young Co.	27	Hoag & Provandie, Inc., Boston
Miller Equipment Co.	52	P. W. Price Advertising Agency, Erie
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Pittsburgh Plate Glass Co.	19	Maxon, Inc., Detroit
Practical Mfg. Co.	33	Fischbein Advertising Agency, Minneapolis
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Safety Tower Ladder Co.	65	Milton Dorsey & Associates, North Hollywood
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Surty Mfg. Co.	32	Mandabach, Marthens & Simms, Chicago
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Wilkie Optical, Inc.	8	
Wilkins Co., Inc.	28 & 29	Laux Advertising, Inc., Ithaca

SEND

THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealing . . vivid . . engaging . . colorful!
- Each worker clearly sees how safety benefits him . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . every month!

. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

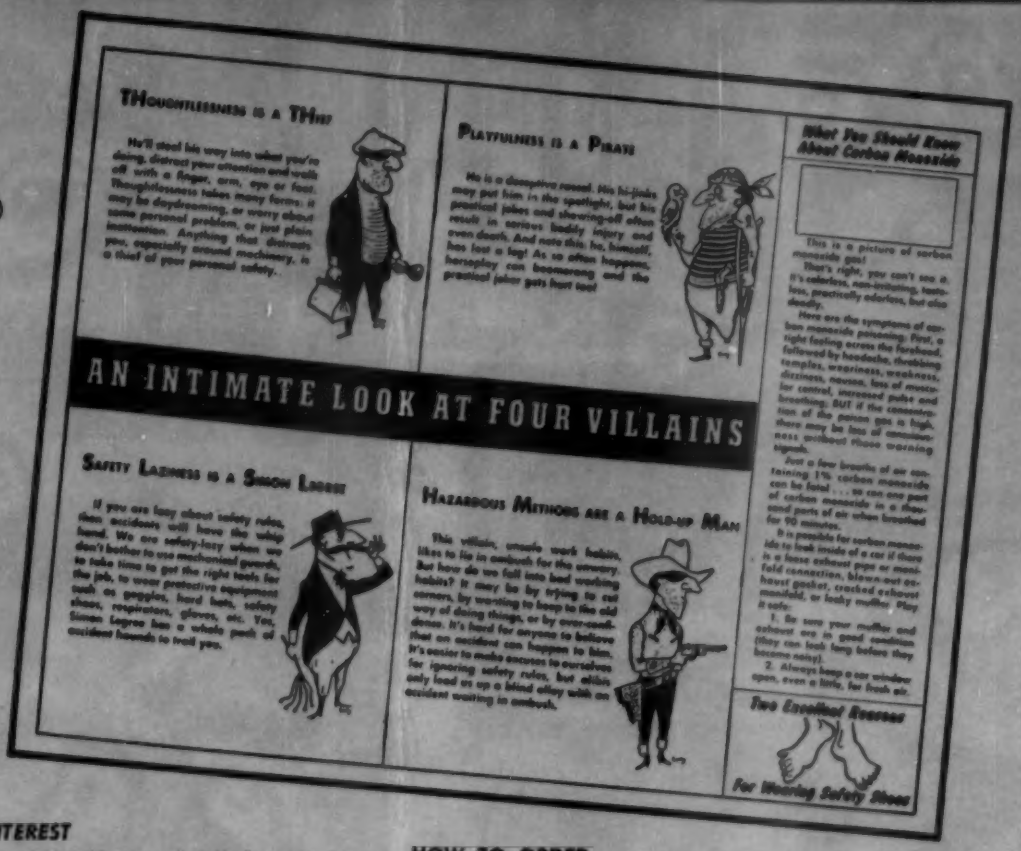
It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make Your Safety News your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)


THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a dangerous rascal. His hi-jinks may put him in the spotlight, but his practical jokes and shoving-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
AN INTIMATE LOOK AT FOUR VILLAINS
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's odorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning. First, a right feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing. BUT if the concentration of the person gas is high, there may be loss of consciousness without those warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . as can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler. Play it safe:
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
SAFETY LAZINESS IS A SHADY LODGER
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to trail you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but all it only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

HOW TO ORDER:

YOUR SAFETY NEWS may be ordered with either the standard imprint or with your Own Special Imprint. The standard imprint reads "PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER."

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below:

Item (1) FIRM NAME: Please show the name of your firm exactly as it is to appear.

Item (2) INDIVIDUAL NAME OR SIGNATURE: (If Desired). On a sheet of white paper, please show, in black ink, the individual name or signature, if desired, which is to appear each month on the first page of YOUR SAFETY NEWS.

NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

CUT OUT AND MAIL TODAY!

ALFRED M. BEST COMPANY, Inc. • 75 Fulton Street, New York 38, N. Y.

Gentlemen:

Until further advised please publish for us each month _____ copies of YOUR SAFETY NEWS at _____¢ each.

☐ Special Imprint ☐ Standard Imprint

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Item (2) (If Desired). Please Imprint the name or signature shown on the attached sheet of white paper or the following: _____

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1,001 to 3,000 copies	3½¢ each	3¢ each	25 to 99 copies	**	5½¢ each
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** 5½ each plus $3.50 per month. For Special Imprint. F.O.B. New York, N. Y.

Another Outstanding Safety Equipment Development from CESCO

NEW G-3
Hed-Rite Headgear
Designed with your head in mind!
• BROAD BEARING, PIVOTING CROSS STRAP, with concealed height adjustment
• NON-SLIP, NON-STRIPPING RATCHET adjustment for head size
• NYLANITE CONSTRUCTION, sturdy, non-shrinking, non-warping
• 20% to 25% LIGHTER than previous headgears
• CAMBERED HEADBAND with offset rear strap
• EBONY FINISH resists degeneration by Ultra-Violet rays
• NO RIVETS, NO EXPOSED METAL—cannot snag hair
• INTERCHANGEABLE WITH HARD HATS. Snaps on or off in seconds
—a Premium-Quality Headgear at No Increase in Price!
771-FT
This compact, light face shield is available with translucent fiber-glass deflector crown
748-FT
NEW fiber glass crown is now available on the popular 748 face shield
401-7F
Fiber glass helmet with stationary lens holder

THE remarkable Hed-Rite Headgear adjusts three ways: for head size; for overall strap length; for overhead strap position.

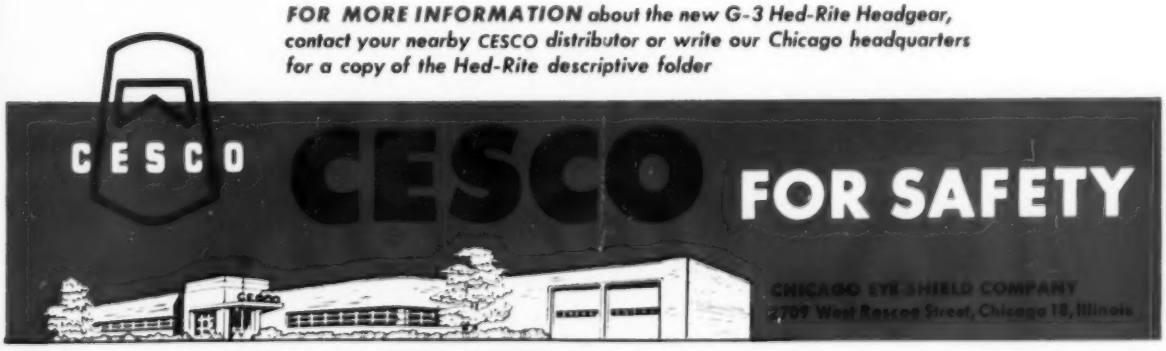
Easy-turning rear knob provides head-size adjustment by ratchet action. Ratchet is non-stripping in normal use. Excessive tension results only in slippage without damage to the ratchet or teeth.

Wide cross strap pivots freely back and forth. Four holes in each end of this strap give eight positions of adjustment so as to conform to any crown height and any head contour.

Unique design of the headband gives the proper combination of curves and opposing cambers to produce the broad contacts necessary for complete comfort.

The Hed-Rite headgear may be worn with any face shield, helmet, hood or goggle equipped with CESCO X-12 brackets. Only three typical applications are shown. Headgear is instantly detachable from helmet or shield without the use of tools. There is no electrical conductor between the interior of the headgear and the exterior of the shield or helmet.

***FOR MORE INFORMATION** about the new G-3 Hed-Rite Headgear, contact your nearby CESCO distributor or write our Chicago headquarters for a copy of the Hed-Rite descriptive folder*



(For details, use Key # D-34 on card on page 1)

Thantis® LOZENGES

first aid for throat irritations

SORE THROATS due to coughs and colds, if neglected, may result in lost man hours of work.

THANTIS® Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

THANTIS Lozenges relieve pain promptly—reduce infection—act prophylactically.

Twenty-seven years' extensive clinical and lay use has proved the safety and effectiveness of this popular product.

(For details, use Key # D-35 on card on page 1)

HYNSON, WESTCOTT & DUNNING, INC.

BALTIMORE 1, MARYLAND

Mercurochrome®

First aid for wounds . . . . . .

Neglect may cause infection which can be prevented by prompt use of 'Mercurochrome.'® No antiseptic has been proved to be more effective than 'Mercurochrome' for topical application.